WEST ISLES FEASIBILITY STUDY

A STUDY TO ASSESS THE FEASIBILITY OF
ESTABLISHING A NATIONAL MARINE PARK
IN THE WEST ISLES AREA OF
THE BAY OF FUNDY, NEW BRUNSWICK

TASK REPORT

Parks Canada Parcs Canada

Tourism New Brunswick Tourisme Nouveau-Brunswick

OPTIONAL VISITOR USE CONCEPTS FOR THE PROPOSED NATIONAL MARINE PARK IN THE WEST ISLES, SOUTHWESTERN NEW BRUNSWICK

WEST ISLES FEASIBILITY STUDY

PARKS CANADA/TOURISM NEW BRUNSWICK

November, 1985

FOREWORD

The West Isles Feasibility Study was initiated by the federal Minister of the Environment responsible for Parks Canada and the New Brunswick Minister of Tourism in November, 1983. The purpose of the study is to assess the feasibility of establishing a national marine park in the West Isles area of the Bay of Fundy.

The West Isles Feasibility Study is being conducted in three phases. Phase I is an assessment of the technical feasibility of establishing a national marine park in the West Isles area, from the perspective of Parks Canada and Tourism New Brunswick. If Ministers decide to proceed with the study, Phase II would involve extensive public consultation to provide the local public with the opportunity to become directly involved in the process to decide whether or not the West Isles proposal is feasible. The purpose of Phase III would be to analyse the results of the two preceeding phases, and to prepare a final report based on the findings, with recommendations for a future course of action.

In the process of completing Phase I, nine individual studies were conducted to investigate specific aspects of the feasibility assessment, all of which are summarized in the Phase I report. These nine studies include the following:

1. Recommended Resource Management Guidelines
2. Institutional and Administrative Arrangements
3. Optional Visitor Use Concepts
4. Transportation Analysis
5. Tourism Development Plan
6. Socio-Economic Impact Study
7. Historical/Archaeological Concerns and Opportunities
8. Land Ownership Inventory
9. Analysis and Summary of Public Comments

Copies of the above reports are available upon request from the following addresses:

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* Throughout this report the former title Tourism New Brunswick has been used. The correct title is now the Department of Tourism, Recreation and Heritage.

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EXECUTIVE SUMMARY

This Feasibility Study addresses the potential of the Study Area located in the West Isles of Southwestern New Brunswick for the establishment of a national marine park. This Study Area has been designated as a marine Natural Area of Canadian Significance and, as such, is a candidate area for possible future designation as a national marine park.

A precondition of this study is that commercial harvesting of renewable resources must continue as one of the future uses of the Study Area, recognizing that the West Isles' contribution to local and international fisheries and fish markets is very significant. From a visitor use perspective, a national marine park in the West Isles, and the continuation of commercial fishing operations, are mutually compatible endeavours and, as such, share a common concern for the long term conservation of fish stocks.

The recommended Visitor Use Concepts in this report have been prepared as part of the study to determine the feasibility of establishing a proposed national marine park

in the West Isles. Three alternative visitor use scenarios, or options, enable one to visualize what a national marine park might look like, and to see how some of the visitor services might be managed.

The feasibility criteria pertaining to the Visitor Use Concepts, and dealing specifically with 'visitor use and enjoyment', 'local services and infrastructure', and 'park development, operations, and maintenance', can be satisfied by the selection of any one of the identified visitor use scenarios, and the subsequent establishment of a national marine park. Therefore, the proposed park concept is feasible from a visitor use perspective.

It is anticipated that these Visitor Use Concepts will be made available for discussion with the local public, commercial fishermen in particular, and other government agencies. They are subject to revision before a final recommendation on feasibility is forwarded to Federal and Provincial Ministers. If the decision is taken to proceed with the establishment of this proposed national marine park

in the West Isles, the park establishment process will subsequently require further research and interdepartmental, intergovernmental, and public consultations to reach a concensus on more specific aspects of the proposals.

INTRODUCTION

The visitor use concepts identified for the West Isles area are based, in large measure, on the natural and cultural characteristics of the resources. The configuration of the land mass and the location of established communities, industries, and infrastructure, such as roadways, hydro-electric transmission routes and other community services, also play an influential role in determining possible scenarios for use and development. Similarly, the nature of sensitive resources, significant habitats, and other environmental factors, have influenced the choices as to the types, locations, and general level of visitor activities that are appropriate for the West Isles. The bulk of the significant resources are concentrated within the marine environment, along the coastline, and on the numerous islands and islets within the outer reaches of Passamaquoddy Bay in the Bay of Fundy. Consequently, the marine environment and certain isalnds within a national marine park, if one were to be established, would be used for recreation activities, interpretation functions, and resource conservation and management. Commercial fishing activities would continue in the proposed national marine park. Small parcels of land on the adjacent coastline will provide the land base for park service areas and access

points to the marine component. Access to some of the islands will be restricted because of the fragility of the environment. Transportation for visitors within the proposed national marine park will be possible either by organized cruises, shuttle boats, or private marine craft.

DESCRIPTION OF THE WEST ISLES AREA

This chapter presents a concise description of the features and attributes of the West Isles.

. Physiography

The West Isles area is composed of some forty islands of varying size as well as numerous small islets and shoals. The islands form the southeastern boundary of Passamaquoddy Bay and lie less than a mile from the New Brunswick mainland.

The small islands lying to the east of Deer Island vary in character. Many exhibit the rugged character of Deer Island. However, with the exception of McMasters and Pendleton Islands, where cliff heights reach 300 feet, the outer islands exhibit tidal flats, sand and shingle beaches, bedrock bluffs, and a rugged intertidal shoreline. The rugged cliffs, sheltered coves and sheltering small islands provide a varied land and seascape which is aesthetically pleasing.

Subtidally, the topography is equally rugged with charted depths reaching nearly 300 feet among the islands. The

general compactness of the archipelago together with the rugged character of the sea floor and extreme variations in depth produce a diverse underwater landscape.

- **Climate**

The archipelago is under the influence of a north temperate marine climate which is characterized by warm winter temperatures, cool summer temperatures, extended periods of summer foq and moderate to strong fall and winter winds.

- **Oceanography**

Tremendous volumes of ocean water pass through the archipelago twice daily forming some of the highest tides in the world. Indeed these currents can be so violent at certain localities to create such features as the Old Sow Whirlpool located off the southern tip of Deer Island, reputed to be the second largest whirlpool in the world.

Water tempertures are typically cold and range from minus 1.7°C in winter to a hight of 15°C in summer. Salinities vary from one area to another and rarely exceed 33‰. Water quality is presently at an acceptable level.

There is a wide variation in water clarity from one location to another as well as seasonally. Water clarity is variable during the summer due to periodic plankton blooms but is usually quite high in spring, fall and winter. Among the islands underwater visibility is usually 3.0 to 4.5 metres. Offshore visibility averages 4.5 to 6 metres and may reach 9 metres or more at certain times of the year.

. **Natural Themes**

Within the area are representative and excellent examples of:

- invertebrate animals characteristic of Atlantic Canada (lobsters, crabs, starfish, urchins, sponges and sea shells);

- island systems which vividly display the geomorphologic history of the Bay of Fundy region including both past glacial historic events and present marine erosional forces;

- one of the areas of highest marine productivity in the Bay of Fundy and on the east coast of Canada. Studies

indicate that Head Harbour and Letite Passages are two important centers of productivity in the Bay of Fundy. Almost all of the species known to occur in the Bay, from the smallest planktonic life forms to the largest whales can be found in the seaward portion of the area especially during the highly productive months of summer and fall. Species counts indicate that in the West Isles area there are known occurrences of some 836 invertebrate species, 96 fish species, 70 bird species, 20 species of mammals and 223 species of terrestrial and aquatic plants;

- critical feeding, breeding and staging areas of regional and national significance for a wide assemblage of shorebirds, seabirds and waterfowl such as Bonaparte's gulls, northern phalaropes, common and arctic terns, and Eider ducks;

- critical feeding and staging areas of regional and national significance for large whales such as the finback, minke and occasionally the right and humpback whale;

- a resident group of harbour porpoise reputed to be one of the largest remaining groups of the species in the

world. The area is known to be the last remaining stronghold for this species in the western Atlantic, south of Newfoundland;

- diverse and representative marine intertidal and subtidal habitats such as rocky shores, muddy shores, sandy shores, mixed shores, tide pools, brackish ponds, salt ponds, man-made habitats and open sea habitats;

- open sea habitats which are the production grounds for one of the world's largest herring populations;

- tidal processes and oceanographic phenomena which are outstanding in Atlantic Canada;

- large numbers of surface swarms of Euphausid shrimp and associated marine life. Only in a few areas in the Bay is it possible to view this phenomena.

- one of the few areas in the Bay where one can observe large numbers of feeding gulls, phalaropes and other seabirds during spring and fall migrations (upwards to 70,000 birds can be seen on any one day in spring and fall during migration periods);

- significant populations of lobsters;

- diverse ocean influenced island ecosystems which include plants, songbirds and mammals; and,

- established populations and bald eagles, osprey and other raptors.

. **Cultural Themes**

Archaeological evidence of the habitation of the Passamaquoddy Tribe of the Abnaki Nation, the Northeastern portion of the Algonkian stock, is resent and relatively undisturbed. There is also an abundant history of pre-Loyalist settlement throughout the area particularly on Indian Island. Here some original buildings remain which attest to the rich fur, fish and lumber trade with the West Indies, England and the United States which took place during the late 1700 and early 1800's. Several historic wrecks of the age of sail and steam are found in the region. Today, the residents of the area continue to reflect the strong fishing traditions established by the earlier settlers of the Fundy Isles region.

. **Summary Statement**

The West Isles captures the best representation of the marine natural and cultural theme elements of the outer Bay of Fundy in a setting which is highly conducive to marine conservation and resource management, while at the same time offering opportunities for a wide variety of water-oriented activities.

GENERAL VISITOR CHARACTERISTICS

One of the more tangible benefits of a national marine park in the West Isles will be the enjoyment of visiting the area and experiencing the abundant variety of natural and cultural resource attributes. Parks Canada's objectives in the West Isles, if a national park were to be established, would be, in cooperation with other government agencies, to conserve and manage these resources, which are significant examples of Canada's marine heritage, and also to encourage public understanding, appreciation and enjoyment of this heritage in ways which leave it unimpaired for future generations. In order to achieve this primary objective, we must first understand who the visitors would be and what their expectations would be in coming to the West Isles. Subsequently, Parks Canada must decide how best to satisfy these expectations and present a program of opportunities that would encourage public understanding, appreciation and enjoyment of the resources within the proposed national marine park.

Visitors to the West Isles would have certain common characteristics. Concern for an inexpensive vacation is expected to be a dominant consideration for a majority of travellers throughout the 1980's. It is expected that the

majority of visitors to the West Isles would arrive by automobile, which will be the major form of vacation travel for the immediate future and on into the next decade.

Families on summer holidays and other tourist groups would be attracted to this national marine park, if it is established. Peak visitation would occur during the warmer summer months and would be closely linked to the school year, making late June, July and August the most significant period for high visitor numbers. The shoulder season, early spring and late fall, would be noted for visitation by families without children, retired individuals, and other special interest groups, such as organized dive tours and organized bus tours. Most potential park visitors throughout the 1980's would likely prefer a relatively self-contained vacation package with few surprises in terms of unanticipated costs. Consequently, the promotion of the West Isles as a tourist destination area would fulfill many of the decision-oriented requirements of potential visitors to the region. This would enable people to arrive, therefore, with some understanding of what the proposed national marine park and region could offer, and thereby enable visitors to refine their vacation plans in advance of their trip.

The national and international appeal of a national marine park in the West Isles would act as a positive driving force in capturing distant markets. The effect of this force would be most noticeable among members of the scientific community, professional and amateur scuba divers, and others who strongly support the concept of national marine parks throughout the world.

Within North America, the most distant visitors to the West Isles would likely come from the provinces of Quebec and Ontario, and from the New England states, notably the city and urban areas of Quebec City, Montreal, Toronto, Boston and New York. Bus tours from these various places of origin will become increasingly important through the mid-1980's, reflecting shifts in population toward faster growing regions, the overall rural to urban shift, and the upward shift in the age structure of the population as a whole. Earlier retirement ages and increased volume of travel for this age category. Consequently, the destination/resort area, as can be developed for the West Isles and surrounding region, would provide an appealing market for leisure-time travellers and other visitors to southern New Brunswick.

With moderate economic recovery and lower inflation, travel is expected to gradually become increasingly popular for the

remainder of the 1980's. In the aftermath of economic recession, an increasing population is expecting higher quality products, no change particularly for tourist expenditures such as accommodation facilities, authentic traditional foods, and locally-manufactured handcrafts and souvenirs. Travel will become increasingly popular in the form of package tours and cruises, and business tris combined with family vacations. Travellers are expected to choose vacation locations that offer a variety of things to do within a concentrated area. A national marine park in the West Isles of southern New Brunswick would provide part of this type of vacation experience in the quality that people have grown to expect.

An expected increase in quality vacations will lead to a general shift from passive sightseeing activities toward more personal involvement and experience. People are more and more interested in developing knowledge and skills when selecting leisure-time activities. Increased awareness among travellers has resulted in a demand for a wider variety of attractions, and cultural and educational experiences. The West Isles would provide an ideal setting for tourists who are looking for learning experiences and activities during their overall vacation. The area around West Isles would provide the opportunity for tourists to

learn more about the lifestyles of their hosts and their environment. A national marine park in the West Isles would provide important opportunities for interpreting the natural environment and to provide people of all ages with an increased awareness and understanding of Canada's marine heritage.

In addition to an abudance of marine life, the West Isles possesses an inherent locational advantage for tourism, in that it is near the Town of St. Andrew's, a well-known vacation area demonstrated by its perennial popularity. Tourists naturally concentrate their time in well-known vacation areas. In addition, destination areas are easier to market, easier for the traveller to locate, and easier to describe to the tourist. Consequently, if the West Isles is presented as an additional range of visitor opportunities near a resort community (St. Andrews) of international reputation, the growing popularity of its diverse features would stimulate increased development of tourist facilities.

In terms of specific numbers of visitors to be attracted to the West Isles, and a national marine park within the study area, one should recognize that there are presently in excess of 200,000 non-resident parties passing through nearby St. Stephen annually. The resident travellers within

the province of New Brunswick and the business/convention traffic passing through nearby Saint John will, when combined with non-resident travellers, yield a significant market demand for the natural and cultural attractions of the West Isles area. A reasonable expectation of potential visitors to a national marine park alone in the West Isles, if one were to be established, would be in the range of 50,000 to 140,000 visitors per year depending on the type, location and level of development and services that are provided. To some extent, the ultimate numbers of visitors to be attracted to the West Isles would depend upon the range of visitor opportunities that are developed and promoted within a national marine park and within the adjacent region. The provision of recreation and interpretive experiences in a national marine park, together with the outstanding natural and cultural features throughout the West Isles region, could be combined to provide a total package of opportunities for residents of the area and future visitors to the region.

COMPATIBLE VISITOR ACTIVITIES

Recreational activities that would occur in a national marine park, together with the quality of facilities and services that are provided, determine the type and quality of the visitor experience. An appropriate selection of uses can promote understanding, appreciation, and enjoyment of the marine environment by guiding visitors through a variety of coastal and ocean experiences and by bringing them in contact with a wide range of heritage resources.

A national marine park in the West Isles should provide for a variety of outdoor recreation opportunities which are a means for park visitors to enjoy and understand the park's natural and cultural resources. Activities permitted in a national marine park should appeal to visitors of diverse interests, ages and skills. Information and interpretation form an important part of the visitor's experience. Where possible, the visitor should be given assistance in understanding the proposed park's theme and purpose. It follows, therefore, that interpretation programs and visitor use activities in the proposed national marine park in the West Isles should be designed to complement each other.

Compatible visitor activities, for the West Isles, are those that contribute to visitor understanding, appreciation and enjoyment of the park's environment. The goal of Parks Canada, in providing compatible visitor activities, is to provide a total experience that allows, along with relaxation, a deep appreciation and understanding of the marine resources and cultural riches of the proposed national marine park and surrounding region.

Promoting enjoyment of the marine environment at the West Isles means participation in a recreational activity that follows the visitor to develop or utilize a skill that enhances feelings of challenge, anticipation and relaxation. A variety of compatible activities are appropriate for promoting enjoyment of the heritage resources at the West Isles.

In the following discussion, compatible visitor activities that are appropriate for the proposed National Marine Park in the West Isles are described in some detail and the expectations of various user groups and individuals are explained.

Motorboating

Recreational boating has always been a very popular activity, reflecting a general curiosity and fascination with the water. Boating activities within the proposed National Marine Park in the West Isles would enable visitors to experience and appreciate the various physical characteristics and climates of the Bay of Fundy. Boating activity can take various forms, including pleasure cruising in inshore and offshore waters, recreational fishing, and chartered and public boat tours. Generally, the waters in the West Isles are unsuitable for small craft due to strong currents, tides, and waves. For the most part, the study area is highly suitable for recreational craft over 25 feet in length, and designs such as cabin cruisers and cape island boats. This provides opportunities for local boat owners or fishermen to undertake sightseeing excursions and fishing expeditions. Large tour boats in the West Isles area could also become involved in recreational supply, thereby promoting business opportunities for private enterprise. Generally, tour boats operating on a concession basis to Parks Canada would supply all recreational equipment associated with the boat tour. Parks Canada, or an alternate government agency, would provide docks, wharves, moorings and boat launch facilities for private pleasure craft, and associated parking areas.

Generally, the expectations of boating enthusiasts centre around a minimum amount of congestion around docking and mooring facilities, reasonable waits for boat launching, adequate parking space for cars and trailers, and the availability of ancillary services such as: water and fuel supply, sewage pumpout, and electrical hook-ups at dock side. Boat repair services and marine supplies are two additional facets of recreational boating in the West Isles where there are opportunities for private sector involvement.

Sailing

As a result of the many different types of boats now on the market, sailing today is a diverse activity that may take place on a variety of waters and make use of craft ranging from small windsurfers to large ocean-going yachts. The physical capabilities of waters in the study area render the West Isles most suitable for larger vessels equipped with motors and cabin accommodation that are used primarily for cruising. The study area has limited capabilities for the small, high-performance craft distinguished by lack of cabin accommodation and lack of fixed keel. However, there are some bays and sheltered areas that are suitable for casual sailing by craft in the laser and catamaran class which can be hauled ashore after day use.

Since a large percentage of sailing participants belong to clubs, the expectations of this user group centre upon having opportunities to congregate in specific areas, i.e., docks and wharves, and to socialize with other yachtsmen and sailors. The availability of food and refreshment facilities and marine supplies are important requirements of sailing enthusiasts. Also important for this user group is the need for automobile parking facilities, washroom facilities at dock side, and boat launch ramps.

Saltwater Sport Fishing

Saltwater sport fishing is compatible to at least some portions of the proposed National Marine Park in the West Isles. The activity includes angling by the traditional 'rod and line' method from shores, banks, piers, and wharves; fishing in nearshore waters; and deep-sea fishing using larger craft. Marine sport fishing is often only one component of a boating excursion, the active boat trip being the main recreational pursuit. Sport fishing is therefore often combined with viewing coastal scenery and marine wildlife, photography, and so on.

Sport fishermen often expect to experience the 'natural' appearance of the shoreline along with only 'primitive'

facilities, i.e., for pier fishing or bank fishing. Marine fishing requires limited facilities such as automobile parking areas, trail access to suitable shores, and food and accommodation facilities if several days of fishing have been planned. Convenience facilities would also include cook-out sites, fish cleaning stations and primitive camping areas. In the West Isles area, fishing from piers and by the use of a motorboat would be the most popular methods. There would be some requirements by sport fishermen to purchase replacement items locally such as fishing line, bait, hooks, etc. A local market would also exist for local, commercial fishermen to rent equipment and provide services such as guided tours and fishing expeditions on a short-term basis.

Beachcombing

Beachcombing on an organized basis can be an extremely valuable and informative method of exploring the coastline of the West Isles and learning about the complex ecological structure of living organisms and their habitats where the land meets the sea. Beachcombing in the proposed National Marine Park in the West Isles would be a compatible recreation activity, provided that it would not involve the collection or removal of any articles from the seashore.

The expectations of visitors participating in beachcombing activities would include the desire to experience natural and undeveloped sections of shoreline, opportunities to view local fishing activities, and safe access to the shoreline. Coastal trails, resting benches, observation platforms, and stairs on steep inclines would enhance this type of recreational activity.

Picnicking

Picnicking would be strongly associated with driving for pleasure and camping activities throughout the West Isles, and it would be a very popular recreational activity since most areas provide the opportunity to combine fresh sea air, relaxation, and spectacular scenery.

In general, picnickers expect to be able to enjoy their meal in a quiet setting and to relax before continuing on their journey. Safe and convenient access to wayside pull-offs and scenic look-outs are important requirements for picnickers. In the West Isles area, the potential for a large variety of locally-prepared fish dishes is quite apparent, given the abundance of fresh produce from the sea. These seafood dishes could be supplied to visitors on a take-out basis in association with picnicking activities.

Scuba Diving and Snorkeling

Scuba diving stands out as a sport that provides direct contact with a variety of sub-tidal habitats and physical features such as underwater reefs and subsurface river channels. It is a sport that offers challenge and satisfaction, provides an opportunity to develop specialized skills, and promotes an appreciation of the three-dimensional quality of the marine environment. Scuba diving is compatible with Parks Canada's policy for visitor use in designated areas within the proposed National Marine Park in the West Isles. It is, however, a sport that is available and appealing to only a very limited user group. It is an expensive activity that requires skill, professional equipment, careful instruction, and sophisticated safety facilities. In the Bay of Fundy, full wet or dry suits must be worn for all diving activity and, for prolonged dives, maximum insulation is required. In Canada, all Scuba divers must obtain a certificate of certification, demonstrating established standards of capability, before participating in the sport.

It is obvious that any investment consideration for diving facilities for the proposed National Marine Park in the West Isles must be weighed against providing other opportunities

for underwater viewing for the greater non-diving population. Facilities in a dive centre, for example, must be weighed against other interpretive methods such as video equipment that would offer a surface audience some perspective of underwater life.

Another consideration is the growth rate of Scuba diving activity in relationship to other recreational and interpretive pursuits. It has been estimated that after ten years of operation, a national marine park in the West Isles could attract at least 2,500 divers per year*. Further, if the private sector developed improved facilities accompanied by aggressive marketing and promotion, it is conceivable that up to 7,500 divers could be attracted annually**. This rate of growth in Scuba diving activity would create the necessity for increased investments in diving facilities.

In general, Scuba divers expect to be able to explore a variety of interesting underwater habitats within a concentrated period of time, so as to get maximum benefit from their time in the water. Scuba divers require the services of a dive 'tender' for diver safety, and their expeditions

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* DPA Consulting Ltd., Proposed West Isles National Marine Park: Socio-Economic Impact Study, prepared for Parks Canada, May 1985.

** Jennings, S., Tourism Development Plan (draft), Tourism New Brunswick, December, 1984.

are greatly enhanced by the provision of services and facilities such as: convenient air supply, opportunities to converse with other divers and interested non-divers, adequate safety measures and equipment, and the availability of change rooms, showers, and facilities for light refreshments.

Camping

Parks Canada's draft National Marine Parks Policy refers to camping as a compatible activity in proximity to the marine component of a National Marine Park. Section 3.3.4 states: "Within national marine parks, preference will be given to semi-serviced campgrounds and primitive campsites which enhance visitor appreciation and enjoyment of the park's marine heritage values."

In the West Isles, seascape views and the sounds of ocean waves are important aspects of camping in a marine setting and would provide experiences that are directly linked to the themes of the proposed National Marine Park. Campers expect to be able to enjoy an outdoor setting within a natural environment and to participate in a numbr of related activities such as: hiking, campfire activities, observing wildlife, and picnicking. The availability of locally

produced foodstuffs, camping supplies, fresh water for cooking and drinking, and adequate washrooms facilities all contribute toward a satisfying camping experience.

Hiking Activity and Guided Interpretive Walks

Recreational hiking in the proposed National Marine Park in the West Isles would be a day-use activity of relatively short duration, i.e., one to two hours. Very often hiking occurs in combination with other activities such as photography or wildlife observation. Guided walks are particularly appropriate methods for on-site interpretation of the near shore zone of the proposed National Marine Park involving planned routes, designated stops, and illustrative examples of outstanding features related to the marine environment. The relatively small land base associatd with the proposed National Marine Park would necessitate that hiking be confined to short, circuitous routes. If agreements could be reached with adjacent land owners to permit hiking along the coastal portions of private properties, visitors would be expected to respect these private lands by keeping gates closed, avoiding damage to fences or gardens and generally follow practices that respect private properties. Hikers expect to be able to hike in natural areas that are aesthetic, offer a diversity of natural

habitats and features, and provide some degree of challenge in terms of physical recreational experience. Hikers generally appreciate routes that are well-signed and paths and bridges should be in a good state of repair and free of litter. Observation platforms at natural vantage points offering panoramic views of the seascape, and equipped with telescopes for viewing seabird colonies, porpoises, seals and other marine wildlife would increase the assurance of a rewarding and satisfying hiking experience along the seacoast.

Photography, Painting and Sketching

The outstanding scenery and cultual attractions of the West Isles will continue to make it a haven for painters, photographers, and other forms of passive recreation. Photographers, unlike painters and sketchers, are generally less restricted by their equipment as to where they can venture. Consequently, photographing natural scenes within the marine park and cultural activities within local communities would be very popular activities among visitors. In addition, both amateur and professional underwater photographers would treasure the abundance of marine life within the proposed National Marine Park in the West Isles.

Unlike other forms of outdoor recreation, sketching and photography are not always dependent upon fine weather. Capturing moods and atmospheres becomes part of the challenge, particularly for seascapes as outstanding in subject character as the West Isles. The few requirements of this recreational pursuit include: relatively easy access to the subject matter, a minimum amount of direct interference to both the visitor and the subject being recorded, and a good supply of replacement items such as film, paints, etc. Painting, sketching, and photography are passive recreational activities that are particularly well-suited for the scenic West Isles area.

Wildlife Observation

Wildlife Observtion activities, such as whale watching or observing seabird colonies, are compatible recreational pursuits for the proposed National Marine Park in the West Isles, provided there would be no significant interference with the species, their habitats or natural processes.

Observers of wildlife in natural areas have minimum expectations, other than convenient and safe access to enable the observations to be conducted. Viewing stations such as unobtrusive towers on the shoreline, or shelters situated on

wharves near interesting marine habitats, would facilitate wildlife viewing opportunities. Observation from chartered boats would be a popular recreational activity within the proposed National Marine Park.

Sightseeing and Viewing Historic, Architectural and Underwater Archaeological Sites

Sightseeing would be one of the more popular recreational and interpretive activities in the West Isles. On land this activity would involve touring by private automobile or chartered bus and, to some extent, walking within the villages and coastal communities. The most appropriate locations for this activity would include: designated pull-offs and viewpoints along established highways with a marine orientation, and at other centres of attraction, such as local historic sites.

Unlike several other user groups, sightseers are characterized by a lack of prior commitment to any given activity when entering a national marine park. Sightseers often arrive at their destination with only a vague notion of what they can or would like to do during their visit. Members of this group have few specific expectations other than the desire to see, appreciate, and experience different and

unique attributes of an area. As such, this user group could be expected to be one of the major participants of interpretive programs within the proposed National Marine Park in the West Isles. This group of visitors would also be interested in viewing historic, marine-associated structures, traditional fishing and harvesting techniques, fishing ports, and marine-associated events that would provide some insight into local traditions and lifestyles. However, in order to gain this marine-oriented experience, most people would not actually accompany a commercial fishing boat to sea, or dive beneath the ocean to view a sunken ship. The extent of participation for most visitors would include visiting a fishing harbour, a lighthouse, or aquaculture installation. Therefore, advanced interpretive media would have to be utilized in order to satisfy the expectations of this user group and provide sufficient informatin to improve their understanding of marine-based history and culture.

Discovering Various Interpretive Messages and Themes

Members of this user group are distinct from other groups in that they have specialized interests, prior contact with information material, and a more sophisticated level of understanding of the marine environment. This group con-

sists of both amateur and professional 'natural historians', who would bring high expectations to a proposed National Marine Park, and constitute the single greatest demand for interpretive services. Many would have selected this National Marine Park as the ultimate destination of their trip and would be looking forward to observing unique physical and biological features. (Scuba divers and whale watchers will be two major components of this group.)

Satisfaction in this user group is closely related to success in viewing features, identifying and recording new species; observing unusual concentrations of seabirds and marine mammals or unique coastal forms; improving their understanding of natural processes; and experiencing undisturbed and pollution-free environments.

Organized Boat Tours

Since only a small proportion of visitors are likely to bring their own boats, public water transportation would play an important role in assisting the visitor with observation of marine features and appreciation of park themes. The ferry services between Deer Island and the mainland, and between Campobello Island and Deer Island, offer convenient opportunities for providing offshore interpretation to

visitors in the West Isles. Other visitors would participate in larger group tours on an organized basis, utilizing large tour boats with a capacity of fifty or more persons. Large tour boats in the West Isles area would provide opportunities for private enterprise to become involved in recreational supply. These tour boats could be operated by private entrepreneurs on a concession basis with Parks Canada. The concessionaire would supply all recreational equipment associated with the boat tour.

Participants in an organized boat tour expect to obtain a marine experience, observe spectacular scenery and to view a diversity of park featues and habitats. In general, visitors are more satisfied when they have the opportunity to partcipate in a variety of leisure-time activities in combination with organized boat tours. For example, an interpretive tour offered along with dining, dancing, and refreshments would be more appealing to certain user groups than strict sightseeing excursions. However, this is a general principle which is applicable to only cerain categories of Park users. Other groups, such as families with small children, or bus tours operating on fixed schedules, would be interested in direct, return routes which highlight the marine features and attractions of the Park.

BROAD APPROACHES TO PARK INTERPRETATION

Promoting an understanding of the marine environment implies increasing the visitor's familiarity with the park setting through information, presentation, and explanation of natural and cultural features. A visitor can gain an understanding by various tchniques such as: viewing audio-visual presentations, examining interpretive displays, and participating in interpretive walks.

Promoting an appreciation of the marine environment at the West Isles implies some association with the value placed on the conservation of marine resources and managing these resources for the mutual benefit of local residents and potential park visitors. An appreciation of the marine environment at West Isles may best be gained through direct experience. However, local conditions may not always make this convenient for the visitor or it may ultimately destroy the resource. Other methods of promoting an appreciation would therefore need to be utilized.

Several interpretive themes have been proposed for a National Marine Park in the West Isles and ranked in two major categories: primary importance and secondary importance. Although they have been labelled and

sub-divided into separate parcels, the themes are so inter-related (like the resources they illustrate), that it is difficult to discuss any one of them without talking about its relationship to others.

Interpretive Themes of Primary Importance

I. Oceanographic Patterns and Processes

This theme would stress two fundamental ideas:

(a) The Causes and Products of the Daily Tidal Fluctuations. This would highlight the rips, upwellings, whirlpools and slack areas.

(b) The Relationship between Water Quality - Character and Productivity. This would highlight salinity and temperature changes, plus water quality, chemistry and quantity.

II. The Quoddy Region Ecosystem, A Microcosm of Fundy

(a) This theme would highlight the relationship between the various habitat types in and around Passamaquoddy Bay:

- rocky shore
- muddy shore
- sandy shore
- mixed shore
- open ocean

III. **Passamaquoddy Bay, It's Role as a Feeding, Calving, Staging, and Nursery Area**

(a) This theme would highlight the importance of specific areas in the Bay to the life cycle of various species of fish, marine mammals, and shore and sea birds.

IV. **A Lifestyle Founded on Fishing**

This theme would focus equally on three aspects of the areas human history:

- The Indian-Archaeological Story
- The European-Historical Story
- The Modern Fishery

Interpretive Themes of Secondary Importance

I. A System of National Marine Parks

This theme would introduce the idea of Marine Parks and would suggest the hope for the establishment of a system of Canadian and perhaps world-wide Marine Parks.

II. Origin, Formation, and Sculpturing of the Bay

This theme would describe the geological and glacial origins of the Bay and its subsequent modification by coastal erosional processes to form beaches, terraces, arches, cliffs, lagoons, etc., including underwater features.

III. The Marine-Dominated Terrestrial and Island Environment

This theme would describe the terrestrial flora and fauna which is especially linked to the Marine World, i.e., white spruce forest, and the plant and animal communities whose composition changes according to island location, shape, size and history.

A number of potential methods for developing the interpretive themes have been identified. These suggestions are based on a preliminary overview of the West Isles area and an assessment of its interpretive potential with respect to each theme.

. **Oceanographic Patterns and Processes**

With the establishment of a National Marine Park in the West Isles area, the region would become a much greater destination area than at present, encouraging visitors to stop over in the region for several days at any one time. Travel within the West Isles area would be achieved by motor vehicles and ferries. Because of this, the ferries, and embarcation points associated with them, offer potential locations for the interpretation of this major theme. Since this is proposed to be a National Marine Park, it would be entirely appropriate to encourage visitors to enter the area via water routes. The ferries may offer some visitors their only direct contact with the marine enviornment. The ferries would provide a more-or-less captive audience for the interpretation of the theme 'Oceanographic Patterns and Processes', through the use of signs, displays, brochures, billboards and possibly even short slide or film presentations.

Tidal processes are very evident at Deer Island Point, vividly illustrated by the perpetual activity of 'Old Sow' whirlpool, the second largest whirlpool in the world. This feature, combined with its proximity to a nearby campground and natural observation area, makes Deer Island Point an ideal location for interpretation. A viewing platform and telescope, together with appropriate interpretive descriptions and media, would be the most appropriate methods for interpreting the theme of 'Oceanographic Patterns and Processes'. A visitor reception centre, at this location or some other point, would ultimately offer a more detailed presentation of this theme using expanded media alternatives.

- **The Quoddy Region Ecosystem, A Microcosm of Fundy**

Because of the varied nature of this theme, interpretation would be mainly on-site and associated with Scuba diving stations, wharves, and road-side pull-offs. Interaction with the Huntsman Marine Laboratory in St. Andrews would be beneficial because of its on-going research into marine ecosystems, its established aquarium/museum structure, and its location where local people and visitors with an interest in the marine environment currently congregate. A visitor reception

reception centre would be an appropriate place to link together the variety of composite ecosystems into one larger and more easily comprehended unit.

- **Passamaquoddy Bay, It's Role as a Feeding, Calving, Staging and Nursery Area**

Interpretive exhibits, maps, and presentations of significant events and areas could be provided in a visitor reception centre. Natural promintories could also be used to provide the visitor with a view of those areas which are most valued by seabirds and marine mammals. Boat tours provide an excellent chance to observe whales and birds at close range on a strictly controlled basis to avoid any negative impacts during critical life cycle periods. Private enterprise should be able to provide much of this service.

- **A Lifestyle Founded on Fish**

A visitor reception centre could provide an overview of the importance of fishing historically and in its present form. Indian Island could be referenced as part of an introduction to the Indian-archaeological story. The European-based historical story might be well suited to

the magnificent lighthouse at East Quoddy Head. The modern fishery could be best interpreted in one of the more active communities such as Lord's Cove or Wilson's Beach.

- **Origin, Formation and Sculpturing of the Bay**

This theme would be presented most appropriately from boat tours or from roadside pull-offs where good access is available. This type of theme also lends itself well to automated, audio-visual presentations. If a section of the coast containing outstanding features can be reached on foot, this theme might also be interpreted from a terrestrial trail.

- **A System of National Marine Parks**

This theme should be one of the first messages to be interpreted to visitors. It could be implemented long before any National Marine Park is established. Ultimately, it is well suited to a visitor reception centre, but in the interim, it is best developed using audio-visual media and publications. The theme about a National Marine Park System would have to be incorporated as an underlying theme in most other themes that would be presented.

- **The Marine-Dominated Terrestrial and Island Environment**

  This theme could be interpreted along terrestrial trails and at picnic sites, wherever coastal vegetation is prevalent. A boat tour would be a useful means of providing visual contact with the shoreline so that different island flora could be compared and interpreted.

Interpretive developments for the proposed National Marine Park in the West Isles should initially be individually simple but collectively extensive. They should include signs, exhibits and publications for providing information and orientation to park visitors. The highway exit at St. George, the ferry wharves, the tourist bureau on Campobello Island, and the Huntsman Marine Laboratory at St. Andrew's are all potential locations for orientation and interpretation. Should the National Marine Park become established, and once its resources and visitors are analyzed in more detail, then larger facilities such as a visitor reception centre should be considered.

Boat tours and ferries are integral to providing direct contact with the marine world. Similarly, lighthouses are well-suited to describing or recreating human history. A marine observatory associated with a visitor reception

centre appears to be the most appropriate method of providing visitors with a sub-marine experience, allowing direct observation of the underwater environment through sub-surface windows. A tunnel access to a marine observatory from a visitor centre, at a location such as Green Point, would require additional research and study in order to determine the most environmentally appropriate technology for construction and operation. The narrow gap separating Campobello Island from the lighthouse at East Quoddy Head is one possible location for a tunnel with sub-surface windows thereby providing an underwater marine observatory and a means of experiencing the underwater environment of the West Isles. A tunnel in this case would not be an end in itself, but rather would provide an exciting and safe entrance to a beautiful, extensive lighthouse complex at East Quoddy Head which is an ideal location for interpreting several themes within the proposed National Marine Park.

Audio-visual media and publications, both of which offer visitors a contact with the marine environment, are extremely important components within the full spectrum of interpretive techniques. Sound, which moves far more easily than light through water, is well-suited to allowing visitors to directly experience the world of fish and marine mammals. Underwater microphones could reveal the intensity

of life in the marine world far more successfully than could windows or portholes (depending upon site-specific conditions). Even the sounds of whirlpools or upwellings could be fascinating. Furthermore, a combination of sight and sound may be a valuable interpretive tool. Imagine a roadside pull-offs which features an exhibit on seals plus a telescope which views a commonly used seal haul-out. This haul-out could contain a remote microphone which would enable visitors to view the seals at the same time they are hearing them. This allows for a direct experience of actual seals without distrubing the wildlife.

Finally, the proposed National Marine Park should not be developed with primarily the diving community in mind, but should emphasize the same variety of people who currently frequent terrestrial parks. Nevertheless, some facilities for Scuba divers are essential. Wherever possible, developments should encourage the non-diving visitors to interact with those who dive. Diving and divers are of interest to land-based visitors and wharves are a logical area for interaction. Interpretive signs would work well in conjunction with wharves as a means of introducing both divers and land-based visitors to what they might expect to see both beyond and below. In general, underwater self-guiding trails are valuable interpretive facilities, but there need

not be many of them, and they should be concentrated in designated diving areas so as to minimize potential interference with the commercial fishery. Similarly, specific dive wharves and visitor embarcation points for interpretive tours, above and below the water surface, would be preferred to an elaborate system of facilities used for several purposes. This would minimize traffic congestion, minimize disruptions to fishery-related activities and facilitate effective delivery of interpretive messages to park visitors.

VISITOR USE CONCEPTS

A basic premise of the visitor use concepts for the proposed national marine park in the West Isles is the overall objective of providing as much of the population as possible with opportunities to appreciate, understand, and enjoy the marine environment of this natural area of Canadian significance in ways that are compatible with the management of dynamic natural resources.

The visitor use concepts have been identified on the basis of several assumptions which are presented in the following paragraphs in order to realize what positions, or decisions, were made in defining specific alternatives.

First, it has been assumed that the existing commercial fishery will continue throughout the study area and the proposed national marine park and that it will be conducted in compliance with regulations established by the federal Department of Fisheries and Oceans. This assumption presents definite implications for the visitor use concepts, in that locations and/or times for suggested recreational and interpretive activities have had to be identified so as not to interfere with established herring weirs, known locations of lobster traps (which were observed to be set in

linear patterns along the shoreline), areas of productive shellfish harvesting, i.e. scallop beds, potential commercial areas of interest, i.e. dulse grounds, lobster, trout and salmon rearing ponds, i.e. aquaculture businesses, wharves that were preoccupied with fish landing or processing operations, optimum reproductive habitats, and similar 'fishery-priority' considerations. At the very most, therefore, there would be only marginal interference with a few aspects of any single fishing enterprise, such as: interested tourists seeking to observe fish landings at a wharf or processing in a fish plant, a photographer from a distant tour boat recording a local fisherman as he hauls back his net and empties his catch, or a small group of scuba divers exploring an underwater environment within a designated Scuba diving area. For the most part, the fishery would continue uninterrupted.

Second, it has been assumed that suitable lands would be available for acquisition by purchase for the purposes of a national marine park. A general analysis of present land use in the study area resulted in greater fmiliarity with local infrastructure and its relationship to the proposed national marine park. The existence of some degree of inactive and/or unoccupied land was one definite factor leading to the assumption that some space, for example, on

Deer Island, might be available for purchase if a decision is taken to proceed with the proposed national marine park. If negotiations for purchase do not result in suitable land acquisition in any particular area, then Parks Canada would need to revise a portion of the proposed park concept and negotiate for different suitable property in the area. Local residents would not be displaced from their homes for purposes of a National Marine Park.

Third, in defining three visitor use concepts, three complete perspectives for a proposed national marine park have been prepared; such that, what is being presented for evaluation is a national marine park as it might exist in the region after several years of development which would occur consistently over a ten year period. Thus, the park is 'put in place' as a total package with no other internal departmental influences. In rality, the total amount of money received from Treasury Board must suffice to develop or operate the entire Parks Canada system of heritage areas. Consequently, some projects are deferred to subsequent years, due to limited funds, having the effect of lengthening the period over which any one park is developed.

It has also been assumed that, while the commercial fishery resources would continue to be managed for purposes of

resource harvesting, other marine and marine-related resources would be managed for purposes of resource conservation and resource protection. The implications for the visitor use concepts have resulted in known fragile and sensitive resources, or species habitats, being recognized and either intentionally avoided, or specific uses were proposed for these areas on an organized or controlled basis. Examples include: the avoidance of osprey and bald eagle nesting sites; organized boat tours proposed for areas of finback and Right Whale occurrence; designated Scuba diving areas proposed for sites of significant underwater natural and archaeological resources; facilities were not proposed for coastal islands with significant seabird colonies; herring weirs have been avoided as much as possible; and boat tours routes have been aligned specifically to avoid harrassing marine wildlife. Some degree of resource protection can be accomplished through the design of the visitor use concepts. Resource management guidelines, defined as another part of this Feasibility Study, are equally important in establishing the framework for conserving and protecting many of the non-commercial, yet tremendously valuable, natural and cultural heritage resources within the proposed national marine park. The Visitor Use Scenarios - Option I, Option II, - portray a proposed national marine park in a rural setting where there

is initially a relatively low level of community infrastructure. In Option III, the proposed national marine park would be developed at two, well-established, tourist destination areas - St. Andrews and Campobello Island. For all options, it has been assumed that a major proportion of the service requirements, particularly for the accommodation and circulation services, can be met outside the park.

The proposed National Marine Park would be predominantly based on the aquatic environment with boat tours, scuba diving, shipwrecks, marine life, local history and folklore as integral and exciting parts of the total visitor experience. The proposed Park would provide a setting for these activities and would set a quality standard for the development of facilities in the area, maintaining the unique and appealing rural, marine character of the West Isles and Campobello Island.

In each concept, visitor activity areas have been proposed for the study area. These areas include visitor activities such as picnicking, attending a visitor reception centre to discover the park's themes and stories, embarking on a major boat excursion where resource features would be interpreted and explained, launching one's own boat for a day of sport fishing, observing marine wildlife through a telescope at a

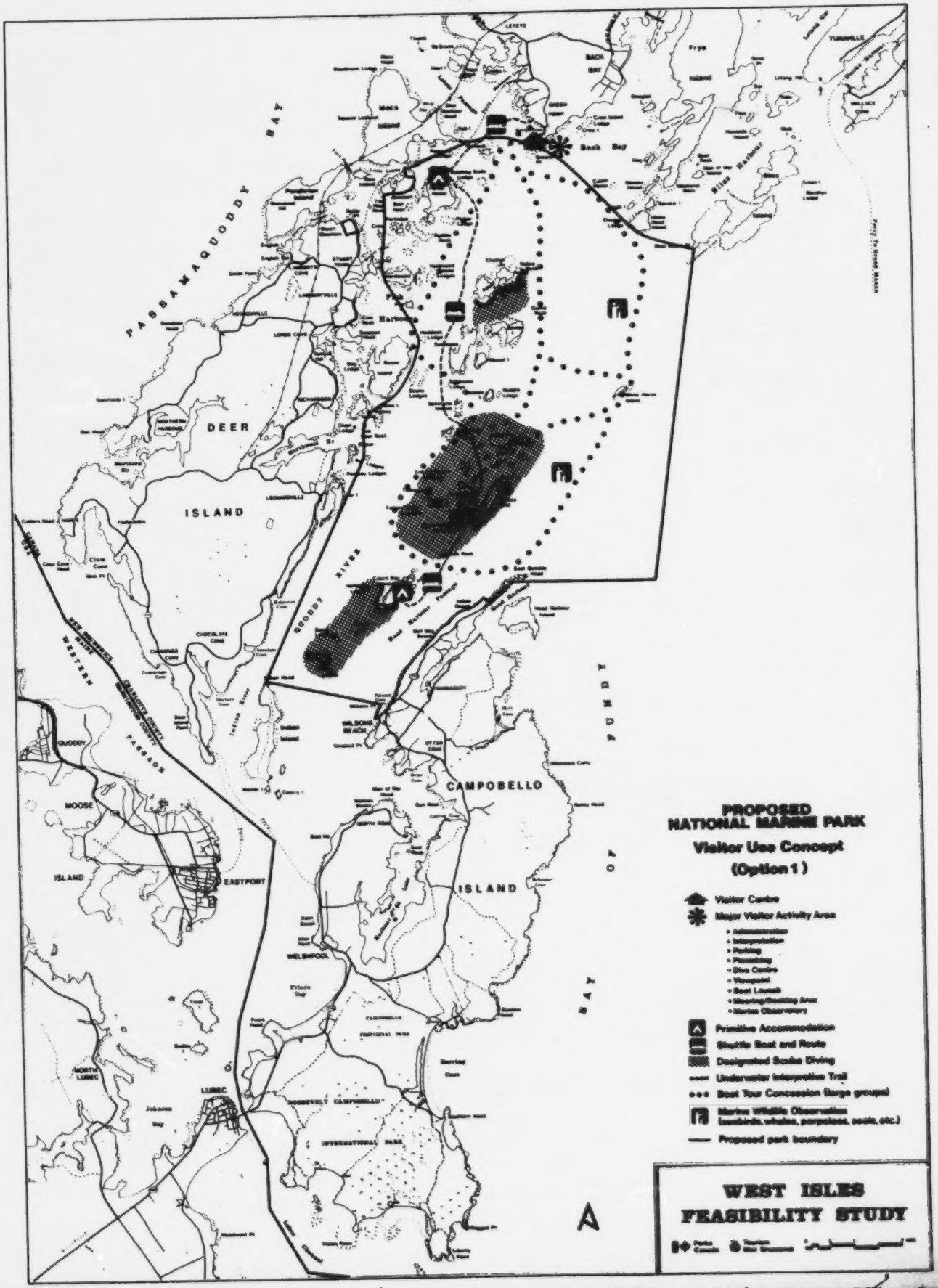
major viewpoint, or docking one's own private craft and walking to a nearby community, a hiking trail or the visitor centre. In addition, one could park at one of several parking lots and take the park shuttle boat to explore or camp on one of the islands within the national marine park. Special interpretive tours for small groups (approximately 15-20 people) would depart from the visitor centre, or other pre-arranged locations, on a scheduled basis to special sections of the park, where natural and cultural features could be observed and photographed. A dive centre would be located within one of the visitor activity areas thereby promoting close contact between scuba divers and the non-diving public in a setting where marine information could be discussed and exchanged. Chartered boats would dock at the dive centre to pick up scuba divers and transport them to specially designated scuba diving areas in the park. Organized interpretive dive tours would also disembark from the dive centre.

Visitor activity areas could be located at Butler Point or near Deer Island Point on Deer Island; Green Point or St. Andrews on the mainland; or near Wilson's Beach or the northern part of Campobello Island.

The principal difference between Option I, Option II, and Option III is the geographic relationship of the various facilities and services offered. Option I is concentrated on the mainland portion of New Brunswick, primarily in the Green Point area. An information and orientation function would be provided at St. George. Primitive camping opportunities would be provided on a few of the smaller islands in Passamaquoddy Bay. Options II and III are basically decentralized development concepts providing more dispersed recreation opportunities throughout the proposed Park. The latter stages of these developments would be completed at a time when the regional and community infrastructure is more fully developed. All three Options provide approximately similar levels of services; however, in Options II and III the services are more dispersed throughout the region. The total cost of Options II and III is larger than Option I due, in part, to the necessity to acquire and service a few additional small parcels of land. If the capacity of the existing infrastructure (i.e. public wharves) is inadequate or inappropriate for use, in Options II and III, then the total cost will be higher than present cost estimates indicate.

OPTION I

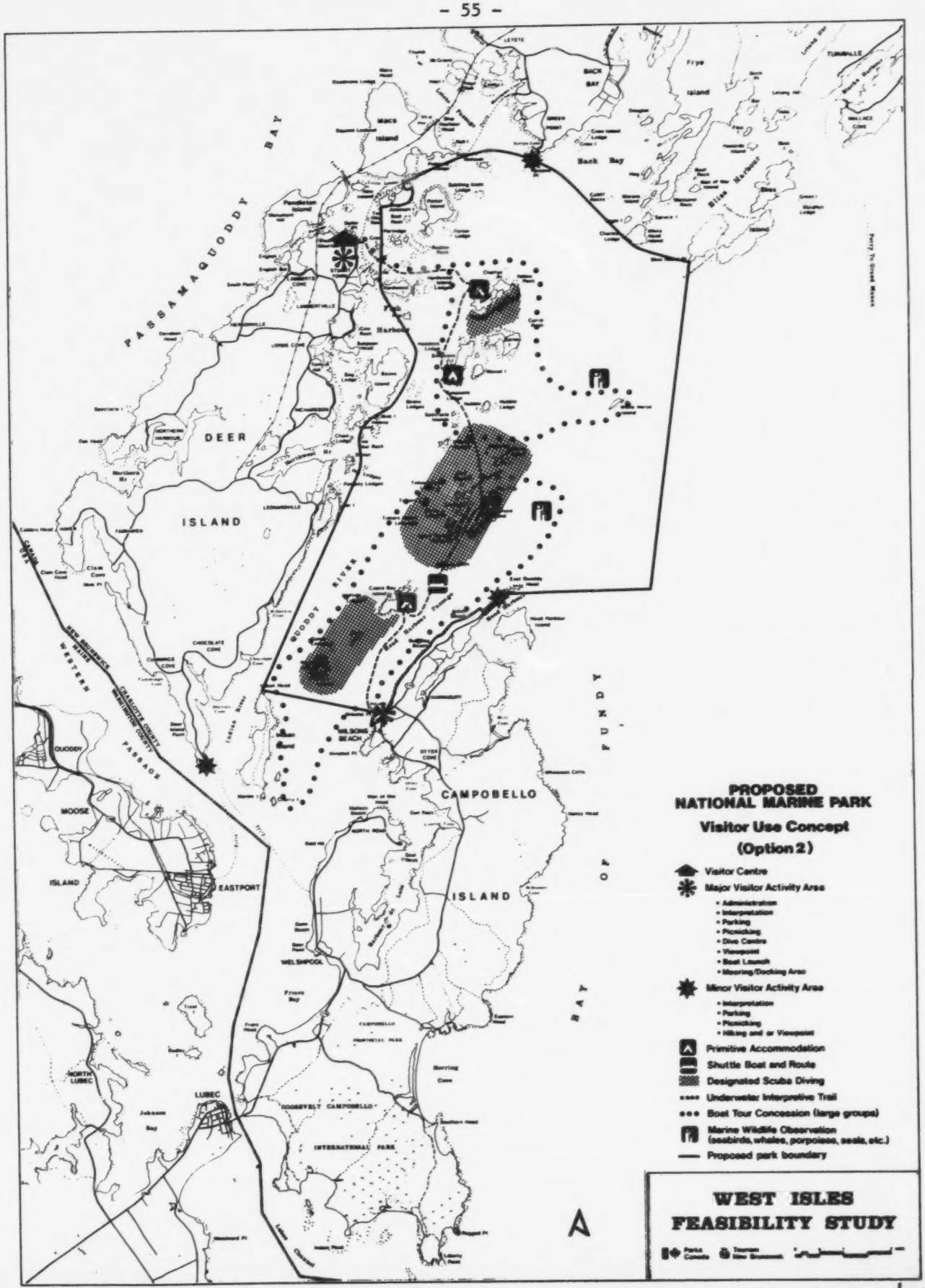
Distinguishing factors for Option I include the Green Point land base for the proposed National Marine Park, the prominence of cultural themes, a small rural population and a comparatively higher proportion of visitors from outside the province. Families on summer holidays and other tourist groups would be attracted to this proposed National Marine Park. Important service requirements for this scenario are adquate public access to the marine park and adequate accommodation for out-of-province visitors. Essential services and facilities to appreciate, enjoy and understand the coastal and marine resources of the area are illustrated on the map (Option I). Activities might include beachcombing, guided scuba tours, boat tours offering underwater viewing capabilities, recreational boating and whale watching excursions. Improved vehicular circulation would benefit visitors and local residents. Primitive accommodation on some of the smaller islands would provide a marine-related, camping experience. Cottage and resort accommodation could develop in nearby communities for non-campers. A wide range of relatively low-key recreational opportunities and their related facilities would be provided including a visitor centre as the most appropriate facility to orient and guide the visitor to the kind of experience that would be avail-


PASSAMAQUODDY BAY
DEER ISLAND
QUODDY RIVER
WESTERN
QUODDY
FAIRHAVEN
MOOSE ISLAND
EASTPORT
LUBEC
NORTH LUBEC
WILSONS BEACH
CAMPOBELLO ISLAND
WELSHPOOL
CAMPOBELLO
INTERNATIONAL PARK
PROPOSED
NATIONAL MARINE PARK
Visitor Use Concept
(Option 1)
Visitor Centre
Major Visitor Activity Area
Primitive Accommodation
Shuttle Boat and Route
Designated Scuba Diving
Underwater Interpretive Trail
Boat Tour Concession (large groups)
Marine Wildlife Observation
(seabirds, whales, porpoises, seals, etc.)
Proposed park boundary
WEST ISLES
FEASIBILITY STUDY

able in the proposed National Marine Park. In addition to the more traditional media devices, such as films and interpretive exhibits, important marine resource management principles could be illustrated in the visitor centre through the use of simulation models and electronic equipment. A marine observatory, providing visitors with direct access to the underwater environment, would highlight the experience of local and out-of-province visitors.

OPTION II

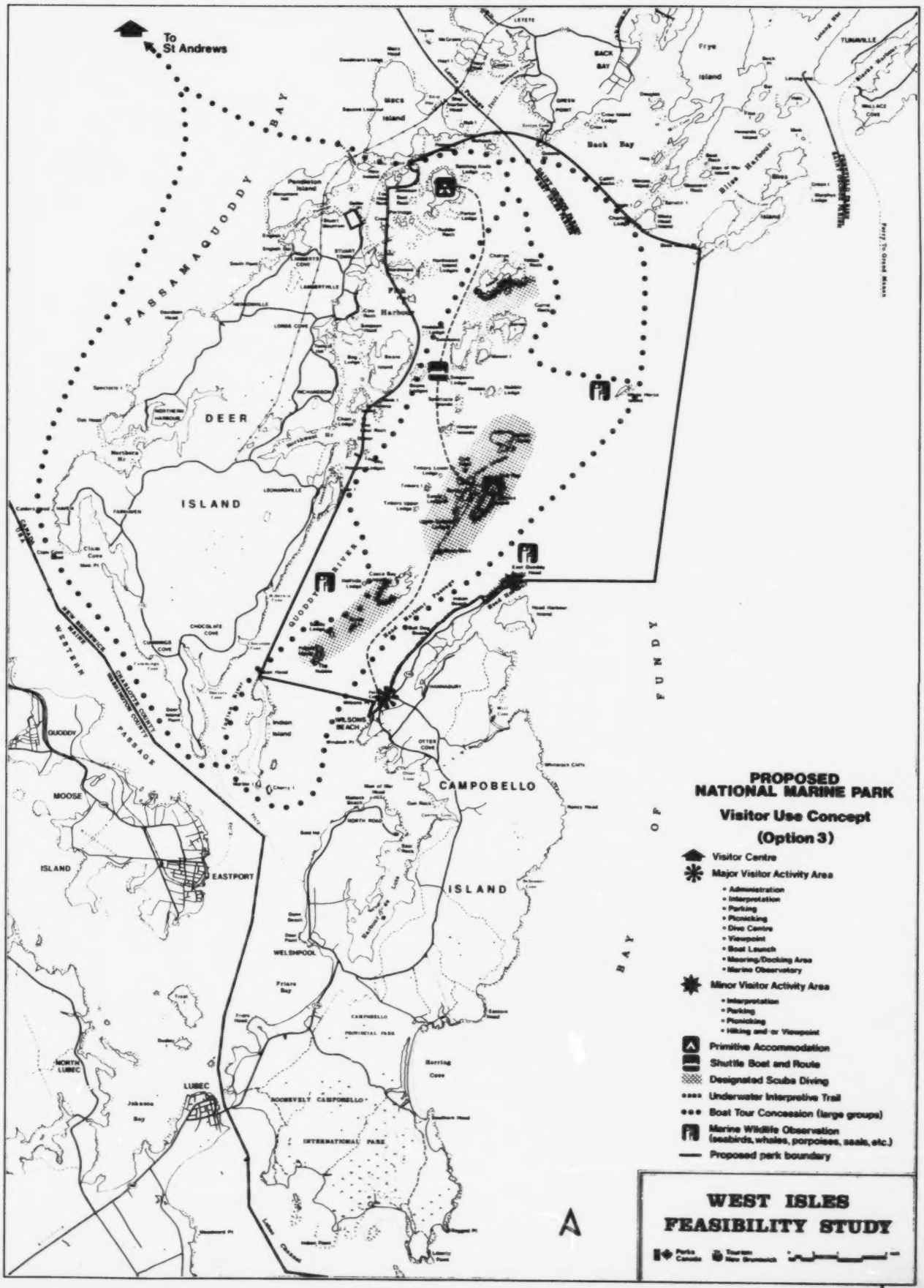
Option II would include small land bases in several decentralized locations; such as Green Point on the mainland, two small parcels of land on Deer Island, and two small parcels of land on Campobello Island. Adequate public access to the West Isles and Campobello Island would include improved highway linkages from the major travel routes. An upgraded ferry service linking Campobello Island, Deer Island, and Green Point would improve visitor circulation and provide a marine 'tour' in the vicinity of the proposed Park. Various services and facilities are illustrated on the map (Option II). Activities might include guided scuba and snorkeling tours, whale-watching tours, viewpoints for observing marine wildlife, organized boat excursions for large tour groups, and visiting one of two smaller visitor centres, (as


PASSAMAQUODDY BAY
DEER ISLAND
QUODDY
MOOSE ISLAND
EASTPORT
LUBEC
NORTH LUBEC
WELSHPOOL
CAMPOBELLO ISLAND
WILSONS BEACH
ROOSEVELT CAMPOBELLO INTERNATIONAL PARK
BAY OF FUNDY
PROPOSED
NATIONAL MARINE PARK
Visitor Use Concept
(Option 2)
Visitor Centre
Major Visitor Activity Area
• Administration
• Interpretation
• Parking
• Picnicking
• Dive Centre
• Viewpoint
• Boat Launch
• Mooring/Docking Area
Minor Visitor Activity Area
• Interpretation
• Parking
• Picnicking
• Hiking and or Viewpoint
Primitive Accommodation
Shuttle Boat and Route
Designated Scuba Diving
Underwater Interpretive Trail
Boat Tour Concession (large groups)
Marine Wildlife Observation
(seabirds, whales, porpoises, seals, etc.)
Proposed park boundary
WEST ISLES
FEASIBILITY STUDY

compared to Option I), where marine themes are illustrated by appropriate media devices. Displays, brochures, cross-section illustrations, films, and slide shows are possible means of presenting interpretive messages to visitors. Special interpretive boat tours for small groups would also be provided.

OPTION III

Option III consists of a level and type of services and facilities that are similar to Options I and II. However, the geographic distribution of these services is somewhat different from the other visitor use scenarios. In Option III, visitor services would be provided at two major locations: St. Andrews and Campobello Island. These are well-established, tourist destination areas which possess a number of amenities catering to the travelling public, such as hotels, motels, restaurants, and craft outlets. Visitor services would not be provided by Parks Canada on Deer Island, nor in the Back Bay - Letete - Green Point area, in Option III. The map, Visitor Use Scenario - Option III, visually illustrates the services that would be provided to the visitor in this third alternative.


To St Andrews
PASSAMAQUODDY BAY
DEER ISLAND
QUODDY RIVER
QUODDY
MOOSE ISLAND
EASTPORT
CAMPOBELLO ISLAND
WELSHPOOL
LUBEC
NORTH LUBEC
ROOSEVELT CAMPOBELLO INTERNATIONAL PARK
CAMPOBELLO PROVINCIAL PARK
WESTERN PASSAGE
BAY OF FUNDY
Back Bay
Frye Island
Bliss Harbour
PROPOSED NATIONAL MARINE PARK
Visitor Use Concept
(Option 3)
Visitor Centre
Major Visitor Activity Area
• Administration
• Interpretation
• Parking
• Picnicking
• Dive Centre
• Viewpoint
• Boat Launch
• Mooring/Docking Area
• Marine Observatory
Minor Visitor Activity Area
• Interpretation
• Parking
• Picnicking
• Hiking and or Viewpoint
Primitive Accommodation
Shuttle Boat and Route
Designated Scuba Diving
Underwater Interpretive Trail
Boat Tour Concession (large groups)
Marine Wildlife Observation (seabirds, whales, porpoises, seals, etc.)
Proposed park boundary
WEST ISLES FEASIBILITY STUDY

Tourists travelling between St. Stephen and Saint John would be given general information about the proposed national marine park at the tourist information centre where the western link of Highway No. 127 intersects with Highway No. 1. Additional visitor services would be provided in the nearby town of St. Andrews, a popular recreational resort approximately 20 minutes travelling time by boat to the proposed park area in the West Isles. Among the facilities available at St. Andrews would be a major visitor centre and tour boat linkages to the proposed national marine park. The visitor centre would contain various types of models, displays and media for interpreting the underwater environment within the proposed park. Campobello Island would be the other major contact point for serving park visitors. General information about the park would be available at the tourist informtion centre near the Roosevelt-Campobello International Bridge. A variety of visitor services would be provided on a few small parcels of land on the northern shore of Campobello Island, including a dive centre for the convenience of certified scuba divers and special interpretive events.

Visitor activities to be encouraged in Option III would include: guided scuba tours, surface boat tours, marine wildlife observation, sightseeing, and a variety of special

opportunities for discovering and learning to appreciate the value of natural marine environments. Privately-operated sightseeing and recreational boat tours would be encouraged along designated routes among the attractive islands of the West Isles where visitors would have the opportunity to observe outstanding oceanographic phenomena and marine wildlife. Whale watching expeditions would be among the more popular of these boating excursions. In Option III, visitors would also have the opportunity to camp on a few of the smaller islands with transportation provided by a shuttle boat service. Certified scuba divers would be able to explore several designated areas beneath the ocean surface. Facilities for privately-owned recreational boats would include: docking and mooring areas, freshwater supply, sewage pumpout facilities, and electrical service. As in Options I and II, this option would also consider the visitor who cannot experience firsthand the underwater beauty of the West Isles area, i.e. the elderly, the severely handicapped, parents with young children and children themselves interested in the attractions and features of marine environments as found within the proposed national marine park. For this group of users, a carefully prepared information and interpretive program would be implemented to clearly illustrate and explain the marine life and environments that would be conserved and protected within the proposed national marine park in the West Isles.

DETERMINING NATIONAL MARINE PARK STATUS

One of the roles of this feasibility study is to address the selection of an appropriate management category for all, or portions, of the West Isles Study Area, which has been designated as a marine Natural Area of Canadian Significance (NACS). The standard management categories, definitions, objectives, and criteria for protected areas (IUCN, 1982) have been modified to better suit them to the marine environment (Kelleher, 1982). These categories are presented in Appendix 3 of this report.

The procedure to be followed is to focus upon an area of conservation value; identify the conservation needs; define the management objectives based on these needs; and then select, using the criteria, the appropriate management category for the area so as to meet the defined objectives. The West Isles Study Area is the area of conservation value for purposes of this study. The conservation needs, for each management category, appear in Appendix 3 (see Management Categories for Conservtion Areas). Management objectives for each management category are also defined. Further, the Park Purpose and Objectives Statement (see Appendix 1) has been prepared on the assumption that all, or portions, of the Study Area is appropriate as a 'National

Park' management area. These objectives are useful in helping to understand what purpose the area would serve if designated as a National Marine Park. Similarly, Chapter 4 (Compatible Visitor Activities), Chapter 5 (Broad Approaches to Park Interpetation), and Chapter 6 (Visitor Use Concepts) of this report help to visualize what a National Marine Park might look like if all or portions of the Study Area were designated as 'National Park' status. Feasibility criteria have been defined, and these are found in Appendix 2. In addition, Kelleher (1982) has defined criteria for the selecion and management of various types of conservation areas (see Appendix 3). What remains is to choose the appropriate management category for all, or parts, of the West Isles Study Area. In the final analysis, the criteria of each management category will determine its suitability.

Ten different management categories were considered for the West Isles Study Area:

1. Scientific Reserve/Strict Nature Reserve
2. National Park
3. Natural Monument/Natural Landmark
4. Nature Conservation Reserve/Managed Nature Reserve/ Wildlife Sanctuary
5. Protected Landscape or Seascape

6. Resource Reserve (multiple use)
7. Natural Biotic Area/Anthropological Reserve
8. Multiple Use Management Area/Managed Resource Area
9. Biosphere Reserve
10. World Heritage Site

Two of these management categories are most relevant to the West Isles Study Area: Multiple Use Management Area, and National (Marine) Park. A further adaptation also appears to be appropriate i.e. 'multiple use reserve'. This latter category would include large areas with high conservation value, recreational potential, and a variety of traditional uses (i.e. commecial fishing activities) that are not considered to conflict with conservation objectives.

Multiple use management provisions can be applied to the Study Area. The present management objectives of the federal Department of Fisheries and Oceans (i.e. sustaining the production of fish and other marine products) are similar to the management objectives for the 'Multiple Use Management' category. An unfulfilled capacity exists in the area of management for outdoor recreation and preservation of non-commercial species and species habitats. Quite appropriately, the Department of Fisheries and Oceans has no recreational mandate as a primary responsibility.

Similarly, the federal Department of the Environment, i.e. Parks Canada, does not administer provisions for sustaining a commercial fishery. Furthermore, there does not appear to be a single federal government department or institution with sole jurisdiction to administer multiple use management provisions for a designated portion of the West Isles Study Area, particularly for the combined purposes of commercial fishing, recreation and tourism, and resource conservation and protection. Therefore, what remains is the consideration of National Marine Park status.

A National Marine Park is defined by the I.U.C.N. as a large area (1,000+ ha) which contains representative samples of major natural regions, features or scenery where plant and animal species, geomorphological features and habitats are of special scientific, eductional and recreational interest. They contain one or several entire ecosystems that are not materially altered by human exploitation and occupation. They should be managed by the highest competent authority in the country (i.e. central government or designated agency) whose responsibility it is to prevent or to eliminate exploitation and occupation in the area and to effectively enforce respect for the ecological, geomorphological or aesthetic features which have led to its establishment. The resources are managed and developed to

sustain recreation and education activities on a controlled basis. The area is managed in a natural or near-natural state. Visitors may enter under special conditions for inspirational, educational, cultural and recreational purposes.

The West Isles Study Area consists of approximately 11,000 hectares. It has high marine conservation value, high recreational potential and relatively easy access. Its high conservation value is due to a diversity of coastal environments and habitats; species diversity; and the area's importance to endangered, vulnerable, and depleted or commercial species, such as herring. The Study Area, therefore, qualifies for National Marine Park status.

Commercial species will continue to be harvested within the Study Area, and within the proposed National Park. Non-commercial species, and most species' habitats (i.e. some commercial species' habitats and all non-commercial species' habitats) will be protected within the proposed National Marine Park. Since the official National Marine Park Policy, when approved, would permit commercial fishing to continue, then national marine park status could be implemented within the West Isles Study Area, and in accordance with the precondition of this study (i.e. that commercial fishing continue throughout the West Isles).

CONCLUSIONS

1. Detailed consideration has been given to the coastal and marine resources within the study area, as well as the needs and requirements of visitors to a potential national marine park in the West Isles. One of the conclusions of this report is that several specific types of recreational activities are highly compatible with the purpose and objectives of the proposed National Marine Park. These activites include:

   - beachcombing (primarily on offshore islands)
   - picnicking
   - saltwater sport fishing
   - sailing and motorboating
   - boat tours (organized)
   - scuba diving and snorkeling
   - hiking and guided interpretive walks
   - wildlife observation
   - camping
   - photography, painting, sketching, etc.
   - seascape viewing
   - discovering the various interpretive messages and themes

- sightseeing and viewing of historic, cultural, and architectural sites and underwater archaeological and historic sites of interest.

2. The bulk of the visitors' experience, in pursuing these compatible recreational activities, would be associated with the intertidal zone and boat tours on the water surface. Since most visitors would not come in direct contact with the underwater portion of the potential national marine park, a broad range of facilities and equipment including a large variety of advanced interpretive media would be required in order to extend the visitors' experience into the marine world.

3. The Feasibility Criteria for 'Public Understanding and Enjoyment', 'Local Services and Infrastructure', and 'Park Development, Operations and Maintenance', (described more fully in Appendix 2 of this report) could be satisfied by the establishment of a national marine park in the West Isles area of southern New Brunswick. From a visitor use perspective, a national marine park and the continuation of commercial fishing operations could be mutually compatible endeavours. The benefits of having a National Marine Park in the West Isles, particularly over the medium and long term, would

have a more significant and positive impact than potential opportunities foregone.

4. A National Marine Park in the West Isles area of New Brunswick would provide for the benefit, education and enjoyment of future generations.

5. Under the assumption that the approved National Marine Parks Policy, when completed, permits multiple use of renewable natural resources, notably the commercial harvesting of fish species as permitted by the Department of Fisheries and Ocean, visitor use in a national marine park in the West Isles could be managed, by Parks Canada, in cooperation with other government agencies.

MAJOR RECOMMENDATIONS

The essence of the visitor use concepts for the proposed national marine park in the West Isles area is the marine environment. The cultural, historic and natural features within the marine environment would attract people with a wide variety of interests. The proposed national marine park in the West Isles could, in the foreseeable future, be the only park in the Atlantic Region predominantly based on the aquatic environment with boat tours, scuba diving, shipwrecks, marine history, folklore, and an abundant variety of marine plant and animal life as integral and exciting parts of the total park experience.

Three concepts, Visitor Use Scenarios - Option I, Option II, and Option III, visually illustrate and provide the basis for activities in and on the marine environment.

Recommendation

It is recommended that a relatively small land base be acquired so as to provide an introductory function to the proposed national marine park, allow overall appreciation of coastal features adjacent to the marine environment, and

provide a place from which most park activities would originate. The land base portion of the proposed national marine park would provide a setting for proposed park facilities, as expressed on the maps depicting Options I, II and III, and would provide a permanent natural area for recreational activities.

Basic to the visitor use concepts are six essential components that would facilitate the use and appreciation of the natural and cultural resources:

1. Information Service
2. Visitor Centre
3. Accommodation Facilities
4. Community Infrastructure and Related Services
5. Marine Access and Circulation
6. Dive Centre

The proposed national marine park would provide a setting for these essential components and would set a quality standard for the development of other facilities in the area, maintaining the unique and appealing rural, marine character of the West Isles.

1. Information Service

Many visitors would arrive at the West Isles without proceeding directly into the national marine park. To achieve the best visitor understanding, appreciation and enjoyment of the marine environment, Parks Canada would provide ways of introducing the visitor to the greatest possible variety of habitat types and marine features in a stimulating manner. Since it is impossible to encounter all habitats or features, in only one activity, it would be important to encourage the visitor to participate in a combination of activities, or activity packages, that would permit a full experience with the sea. It would also be important to provide information (brochures, panel displays, billboard announcements) explaining the features and locations of specific interpretive events enabling the visitor to plan his/her day so as to participate in a variety of activities.

Recommendation

It is recommended that a general information service, including park staff, be located at major entry points to the proposed national marine park, such as near the

St. George exit off Highway No. 1, and on Campobello Island. Brochures and billboard announcements should also be exhibited at ferry and boat excursion terminals and interpretive panel displays should be provided on ferries, shuttle boats and tour boats. This information would direct visitors to the park and other areas of local and regional interest.

2. Visitor Centre

In national marine parks, all visitors would not have the capability to walk in the intertidal zone, observe the differences in species of mollusks and submerged plants, or fully appreciate the seascape and underwater life without some assistance. It is important to prepare the visitor by introducing him/her gradually to marine surroundings. The purpose of the visitor centre would be to explain to visitors by various means the features, both natural and man-made, and the activities which are inherent to the West Isles - giving the visitor a preview of the range of available activities. As the centre from which other activities could continue, the visitor is subtly given an understanding of the park program and subsequently would be better able to organize his/her time, activities and experience

while in the park. The visitor centre would provide a focal point for park visitors during all weather conditions and would be flexible to changing visitor needs and desires. The visitor's experience could be enriched at the centre by observing the full range of park activities on films, various displays, and a well-developed interpretive program. After this experience, visitors could take part in on-site activities such as boat tours, scuba diving, or walks along the seashore with a greater understanding and therefore enjoyment of underwater and marine resources.

Recommendation

It is recommended that a park visitor centre be provided at the visitor activity area, or areas, of the national marine park. A visitor activity area should be designated as to provide a focal point for all park visitors. Potential visitor activity areas within the study area include: Green Point, Deer Island Point, Butler Point, East Quoddy Head, Wilson's Point, and, near the Study Area at St. Andrews.

3. Accommodation Facilities

The increased numbers of people attracted to the West Isles as a result of the added opportunities provided by the establishment of a national marine park and other tourist facilities and attactions would require greater accommodation facilities than are presently available.

Recommendations

It is recommended that all campgrounds at the West Isles (with the exception of primitive accommodations) be provided by the private sector, wherever feasible.

If Parks Canada is required to provide camping opportunites, it is recommended that within the proposed national marine park at the West Isles, preference be given to a semi-serviced campground and primitive campsites which enhance visitor appreciation and enjoyment of the park's marine heritage values. The semi-serviced campground should be sited so that audio and visual contact with the sea are maintained. Several of the smaller islands in Passamaquoddy Bay, such as Casco Bay Island, Spruce Island or Parker Island, would provide suitable locations for primitive accommodations. Semi-

serviced campgrounds could be located on Deer Island if the ferry service is upgraded to permit regular use by recreational vehicles, or near Green Point on the mainland. Sufficient camping opportunities are available at present on Campobello Island.

Accommodation such as motels, hotels, hostels, and fully-serviced campgrounds should be located in or near communities such as those existing in the West Isles or on the mainland. These types of accommodation facilities should, wherever feasible, be situated near or adjacent to the proposed national marine park and should be provided by the private sector.

4. Community Infrastructure and Related Services

If a national marine park is established at the West Isles, there would be an increase in the demand for community infrastructure, such as water supply, sewage treatment, electricity, and related services such as retial outlets, restaurants, improved ferry serivces to and from Deer Island, automobile service stations, and diving, boating and equipment rental shops.

A significant portion of the total recreational and interpretive experience at West Isles could be provided by private sector businesses who would operate in or around the proposed national marine park providing goods and services related to national marine park visitation. Some examples would include tour boat operators, boat and bicycle rentals, diving equipment rental and sales, fishing equipment and bait shops, food and refreshment services, souvenir shops, trailer and tent campgrounds and centres where the visitor could visit and explore the operation of a herring weir, lobster pound, trout-rearing pond, and other types of aquaculture being carried out. Tours of sardine packing plants and fish processing operations are already conducted in the area and, with careful organization and planning, this type of activity could be further promoted so that tourists could, for example, observe the feeding of salmon, the gathering of herring from a weir, or the processing of fish produce from the sea.

Collaboration among private sector businesses, national marine park officials, and representatives of the tourist industry, would help to ensure an adequate suply of services and assist in disseminating information to visitors, thereby enabling tourists to make the most of

their visit to West Isles. For example, boat operators who have a working knowledge of the interpretive message of the proposed national marine park would be able to point out natural, cultural and historic features that are important in any particular area. These various groups and business operators could decide for themselves the most effective mechanisms for improving their relationships with visitors, ultimately to the mutual benefit of business enterprise and tourists in the region.

Recommendations

It is recommended that information on community services and facilities be made available at the proposed park information facility so as to inform visitors of community services and facilities in the nearby region.

It is recommended that, wherever feasible, the private sector be encouraged to provide various types of goods and services related to national marine park visitation. These activities should include tour boat operations, various types of equipment supply and rental, and various service requirements for recreational equipment and marine craft (i.e., fuel).

5. Marine Access and Circulation

Access and circulation services will play a central role in the visitor's appreciation of coastal and offshore resources in the West Isles. The majority of visitors would come to the West Isles by private automobile or tour bus. Only a small proportion of visitors would likely arrive on their own boats. Therefore, the public transportation services would have an additional important function in helping to provide the visitor with an appreciation of the marine environment and national marine park themes.

Recommendations

It is recommended that for Option II the provincial highway system on Deer and Campobello Islands be improved to provide the functions of a scenic parkway, or marine drive, by promoting alignments that permit association with marine themes, providing well-marked observation points, and encouraging the use of 'ecotour' brochures. Interpretive display panels and park interpretive staff should provide special messages to visitors utilizing upgraded ferry services between Campobello Island and Deer Island, and between Deer Island and the mainland of New Brunswick.

It is recommended that a number of short trails be constructed, where possible and appropriate, for visitors to explore a variety of coastal habitats throughout the proposed national marine park in the West Isles. Originating from camping areas, the visitor centre(s), picnic areas, and nearby communities, these coastal routes would provide contact with various marine environments, such as salt marshes, beaches, sea cliffs and tidal flats. Telescopes and viewpoints should be provided to facilitate more direct observation of seabird colonies, seal haul-out areas, porpoises, and other marine life.

It is recommended that interpretive boat tours for small groups be conducted, either by marine park interpretive staff or private concessionaires, in the nearshore area, and that a variety of circulation options be planned, each illustrating special features of the national marine park setting.

It is recommended that modes for offshore transportation be restricted to larger craft such as tour boat concessions, park shuttle boats, or private craft. Park-sponsored programs, and park staff if desirable, should be made available to tour concessions so as to provide

offshore interpretation of remote marine themes (i.e., whale watching tours, island seabird colonies, and seal haul-out sites).

6. Dive Centre

The high quality of the natural marine environment and the underwater archaeological resources in the study area will undoubtedly continue to make the West Isles one of the more attractive areas for scuba diving in eastern Canada.

Recommendations

It is recommended that a Dive Centre be provided at one of the visitor activity areas within the proposed national marine park. This would become the organizational centre of all diving activity within the park. Included in this centre would be the major administration facilities related to scuba diving, such as diver registration and checkout, meeting for deciding on dive plans and safety instruction, a communications station housing radio and emergency measures equipment, and diver facilities such as lockers, washrooms and showers.

It is recommended that several areas within the marine environment of the proposed national marine park be designated for purposes of scuba diving and that the locations of these areas be made known to all marine traffic within the park. All designated diving areas, would remain a certain prescribed distance (e.g., 100 metres) from fishing weirs. All methods of fishing by means of stationary gear or equipment (i.e., nets and lobster traps) would continue to be permitted within the designated scuba diving areas, provided that fishing within these areas also complies with the regulations of the Department of Fisheries and Oceans. All scuba diving activity inside the proposed national marine park, whether within a designated diving area or elsewhere, would be conducted so as not to interfere with the commercial fishery. For reasons of public safety, commercial fishermen would be required to respect the presence and requirements of sport divers within all designated scuba diving areas.

RECOMMENDATIONS GOVERNING SPECIFIC VISITOR ACTIVITIES

Motorboating and Sailing

1. Parks Canada, with the assistance of other government agencies and/or local police authorities, should enforce existing and/or new regulations, if required, to control recreational boat traffic for purposes of public safety, environmental protection and to minimize any potential interference with the commercial fishery.

2. Parks Canada, with the assistance of other government agencies, should ensure the adequate provision and maintenance of navigational aids and moorings necessary for the safe conduct of all recreational boating within marine park waters, and its interaction with other park activities such as Scuba diving.

3. Certain areas may be closed to recreational boating, such as in the vicinity of herring weirs and Scuba diving sites.

4. Parks Canada or private enterprise should provide sewage pumpout facilities at dock side for recreational craft

within the proposed National Marine Park, and washroom facilities at designated visitor activity areas for the use of all marine craft enthusiasts.

Saltwater Sport Fishing

1. In support of compatible sport fishing activities in the proposed National Marine Park in the West Isles, Parks Canada should supply or encourage suitable access to seashore areas, boat launch areas and facilities, appropriate car/bus parking areas, and temporary parking facilities for boat trailers. Marinas should not be supplied by Parks Canada as these facilities are more suitably provided by the private sector within, or in proximity to, nearby communities.

Beachcombing

1. Beachcombing should be encouraged by Parks Canada within the proposed National Marine Park, but only in those areas where the park boundary extends to high water mark, such as on the offshore islands. Visitors should be cautioned against the power of the Fundy tides and surf, as well as the potential danger of becoming trapped in areas where steep cliffs might prevent escape from rising tides.

Picnicking

1. Parks Canada should supply picnic facilities at various visitor activity areas within the proposed National Marine Park in the West Isles. These should include sheltered picnic tables, water supply, refuse containers and washroom facilities. Parks Canada should also encourage other agencies such as Tourism New Brunswick to provide picnic facilities near ferry terminals and wharves, at scenic viewpoints along highways and at other centres of attraction, such as central areas in nearby towns and villages and popular tourist attractions.

Scuba Diving and Snorkeling

1. Parks Canada should designate certain areas within the proposed marine park for Scuba diving purposes. Scuba diving would be conducted in those areas by guided tour and would not be encouraged in other areas of the park.

2. Parks Canada should provide facilities for underwater interpretive trails, such as signs, trail markers, buoys and moorings at designated diving areas. Dive tours should also be provided within the proposed National

Marine Park by qualified dive guides, as well as information about the spectacular underwater features to be experienced while scuba diving within the park.

3. Cooperative assistance should be extended by Parks Canada to fulfill emergency safety measures for sport divers by providing decompression chambers, as well as information on emergency transportation services, in proximity to the proposed National Marine Park.

4. Park wardens should be qualified in the procedures of first-aid and rescue assistance and the procedures governing diver safety.

5. Certified scuba divers visiting the proposed National Marine Park in the West Isles should be encouraged to explore designated underwater trails and significant marine features, as well as to avoid hazard areas and any zones within the park that may have been designated for the protection of features or marine life.

6. Sport divers would not be permitted to collect, or harvest, by any means, shellfish of any kind including scallops, lobster, clams and oysters, nor any other indigenous fish species, dead or alive.

Camping

1. Parks Canada should encourage the provision of semi-serviced camping opportunities by the private sector wherever possible. If the demand for camping continues to be unfulfilled by the private sector, then Parks Canada should supply semi-serviced accommodations within the proposed National Marine Park in the West Isles.

2. Parks Canada should provide primitive camping opportunities on selected offshore islands within the proposed National Marine Park.

Hiking Activity and Guided Interpretive Walks

1. It is recommended that Parks Canada provide hiking and interpretive trails where possible and appropriate in the proposed National Marine Park so that visitors will be able to experience the natural features of the seashore and marine environments.

2. Self-guided walks, each with a particular message and theme, should be provided by Parks Canada where possible and appropriate.

Photography, Painting and Sketching

1. It is recommended that Parks Canada encourage passive recreational opportunities within the proposed National Marine Park for the West Isles by providing facilities that are convenient to use, well-maintained, and available to a majority of park users including handicapped visitors, as well as taking into account the needs of individuals, family units and organized groups.

Wildlife Observation

1. Parks Canada, with the assistance of DFO, should provide interpretive programs and qualified interpretive staff to facilitate the safe and nondisruptive observation of wildlife, particularly cetaceans, within the proposed National Marine Park. Park interpreters should give educational talks and host discussions for tour groups on chartered boats operating on a concession basis for Parks Canada.

2. All wildlife observation activities within the marine park should be monitored to ensure that wildlife are not being harassed as a result of the activity. Activities

causing unwarranted interference to whales, seabirds, and other wildlife species, or their habitats, should be curtailed.

Sightseeing and Viewing Historic, Architectural and Underwater Archaeological Sites

1. It is recommended that advanced interpretive media and techniques, such as three-dimensional displays, audio-visual displays, and video recordings of underwater archaeological sites, be employed by Parks Canada to interprete underwater sites of historic and/or cultural significance. For the most part, these media and interpretive techniques should be housed in a central facility, such as a visitor centre, (and/or marine observatory) where various groups can be informed about the features and attractions of the West Isles area. Similar interpetive techniques, as well as organized boat tours, should be utilized to interpret those features on land or on the water surface.

Discovering Various Interpretive Messages and Themes

1. Parks Canada should provide visitors with a variety of opportunities to observe and discover various marine

features that illustrate the interpretive messages and themes of the proposed National Marine Park in the West Isles. The range of these opportunities can vary from exploring an area on one's own, to providing self-guided interpretive walks and boat tours to small groups interested in learning about the Park and its natural diversity.

2. Research opportunities for academic organizations should be provided within the proposed National Marine Park in the West Isles.

3. Information on the significant natural and cultural features within the proposed National Marine Park should be made available to Park visitors. Extension education aimed at schools comprise a portion of the total interpretive program.

Organized Tours

1. It is recommended that Parks Canada give priority to water surface modes of transportation within the proposed National Marine Park in the West Isles by providing, or encouraging the private sector to provide, wherever feasible, organized boat tours throughout the

marine environment. Since most marine resources tend to be free-roaming, seasonal, and distributed over large areas, visitors would not gain a direct appreciation of the marine environment unless it is conveyed through the park interpretive programs and they are provided with access to the wide distribution of marine themes.

2. Parks Canada should convey the message to visitors upon entry to the proposed National Marine Park that participation in an organized boat tour would answer the visitor's expectations of seeing and learning about unique marine features.

3. A variety of boat tour routes should be provided for interpretive tours throughout the proposed national marine park. This will help to ensure that the boat tours satisfy a diverse range of interests of a number of different user groups, and it will increase the likelihood of observing a diversity of species that are by nature extremely mobile.

4. Consideration should be given to various means of establishing a demonstration herring weir for the public to explore, and/or, promote public visits to aquaculture operations as a means of interpeting and emphasizing the

cultural/economic significance of the West Isles area. Such a venture would appear to be feasible for a local resident with business acumen, given the high level of public interest in these local, cultural features.

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APPENDICES

APPENDIX 1

PRELIMINARY PARK PURPOSE AND OBJECTIVES OF THE PROPOSED WEST ISLES NATIONAL MARINE PARK

1.0 PARK PURPOSE

The purpose of the proposed West Isles national marine park would be to protect and conserve for all time this unique marine environment, with the richness of its island archipelago and natural heritage resources that are highly representative of the outer portion of the Bay of Fundy Marine Region, and to encourage public understanding, appreciation, and enjoyment of the area's natural and cultural heritage by present and future generations of Canadians and other visitors. This purpose would be achieved in cooperation and harmony with the local communities.

2.0 PARK OBJECTIVES

2.1 Protection and Conservation of Natural and Cultural Heritage Resources

2.1.1 Natural Heritage

To protect and conserve the productive and diverse marine ecosystem of the West Isles as a representative example of the Bay of Fundy Marine Region in view of the following:

a) the West Isles area, and Head Harbour Passage in particular, is one of the major centres of biological productivity in the Bay of Fundy;

b) the unique assemblage of oceanographic phenomena has produced a marine community with a wide variety of habitat types and of high species diversity and concentrations, so high as to be unique along the New Brunswick shoreline;

c) during the months of July, August, and September virtually all the species of marine life found in the Bay of Fundy are found among the West Isles, especially in Head Harbour Passage.

d) the surface and subsurface configuration of the archipelago, with its extreme variations in water depth, combined with some of the highest tides in the world, have produced an unusual mosaic of oceanographic phenomena including unusually high current velocities, extensive vertical mixing, rips, upwellings, a variety of coastal erosional and depositional features and an interesting and aesthetically pleasing seascape.

e) the area supports a viable and productive commercial fishery of significant importance to the local and provincial economies and which would continue to operate within the proposed national marine park.

2.1.2 Cultural Heritage

To protect and conserve the significant cultural heritage resources associated with the occupation by prehistoric and historic peoples, and features representing early European trading, fishing, navigation, and shipbuilding activities.

2.2 Understanding, Appreciation, and Enjoyment

To provide opportunities for the understanding, appreciation, and enjoyment of the natural and cultural heritage resources and processes associated with the unique natural and cultural mosaic of the West Isles.

To interpret the natural and cultural history themes of the West Isles area in such a way that the visitor would obtain a fuller appreciation and understanding of the richness and diversity of the marine resources, of the inter-relationship between man and the sea, and of the role the West Isles play in the ecology and economy of the Bay of Fundy.

To engender in the park visitor an appreciation and understanding of the role of the national marine parks system and of the proposed national marine park in the West Isles within that system.

To provide facilities and services essential to the public use, appreciation and enjoyment of the proposed marine park, and an understanding of the Passamaquoddy Bay region surrounding the marine park.

2.3 Regional Integration

To integrate and coordinate the protection and management of the proposed national marine park in the West Isles with the surrounding region in a manner that provides positive social and economic benefits.

To integrate the facilities and services for visitor use in the proposed national marine park with a tourism development plan for the Passamaquoddy Bay region.

To provide opportunities for the public of the immediate and adjacent regions to be involved in the planning and management of the proposed national marine park.

2.4 Cooperative Management

To manage national marine park resources cooperatively with other federal and provincial government agencies, in particular with the federal departments of Fisheries and Oceans, and Transport, each of which would retain their traditional jurisdictions over the management of fisheries and fish resources, and marine transportation, respectively.

To maintain regular liaison with other federal and provincial government agencies involved in the management of the regional coastal and marine environment to ensure that park resources are not impaired and to monitor the impact of the park on the surrounding region.

APPENDIX 2

PROPOSED WEST ISLES NATIONAL MARINE PARK

FEASIBILITY CRITERIA

A. These feasibility criteria are conditional statements that must be satisfied for the proposal to establish a national marine park in the West Isles to be deemed feasible by Parks Canada and Tourism New Brunswick in Phase I of the study. They may also be adopted by the West Isles public, in addition to their own criteria, during the Phase II public consultation and their review of the proposal.

National Marine Parks Policy

The operation, management and visitor use of a national marine park in the West Isles could be conducted in a manner consistent with the provisions of the draft National Marine Parks Policy. The following criteria apply to specific provisions of the policy.

Resource Protection/Conservation

The West Isles study area adequately represents the biological, physical and oceanographic features of the Bay of Fundy marine region (1.1.1.i)*

The long term conservation** of the marine resources in the proposed marine park area would be possible so as to maintain ecological processes, species diversity, productivity and abundance (2.1.1; World Conservation Strategy).

The existence of possible threats to the natural environment of the area, particularly with regard to water quality, are minimal and could be retained at an acceptable and manageable level (1.2.2 i).

The area has experienced minimum modification by man or, if significant modification has occurred, has high potential for restoration to a natural state (1.1.1. ii).

* refers to relevant sections of the Draft National Marine Parks Policy (December 4, 1984)

** see Note at end of text

The conservation of all indigenous flora and fauna, and the protection of specific (rare, unique and endangered) resources and habitat critical to their survival, could be accomplished within the proposed national marine park area (2.1.2; 2.2.11; 2.3.4; 2.4.4).

The protection of significant historical, archaeological and cultural resources could be accomplished within the national marine park area (2.1.12).

The natural resources of the proposed national marine park could be managed so that man's activities would leave them unimpaired for future generations (2.0).

Commercial fishing practices that are destructive to the seabed could be minimized (2.3.6).

The commercial, recreational and domestic fisheries would be able to continue within a national marine park, and any potential conflicts between the fisheries and the purpose and objectives of a national marine park could be resolved to the satisfaction of all parties concerned (1.3.2; 1.2.2 ii; 2.2.9; 2.3.1; 2.3.6).

The commercial marine fishery could be co-operatively managed with the Department of Fisheries and Oceans in accordance with the draft National Marine Parks Policy, while also complying with the management goals and objectives of the Department of Fisheries and Oceans and the social and economic goals of the Province of New Brunswick and the West Isles communities (1.3.2; 2.3.1; 2.3.2; 2.3.3).

The traditional patterns and requirements of navigation for the commercial fishery, commercial shipping and for other domestic purposes could be retained within a national marine park in conformity with overall park objectives (2.4.1; 2.4.2; 2.4.3; 2.4.4).

The settlement of any native claims in the proposed park area would not prevent the establishment, operation and management of a national marine park (1.3.11; 1.3.12; 2.2.9 iii).

Sport hunting could be discontinued within the proposed national marine park area (2.2.10).

The termination of any non-renewable resource exploration, extraction or development would be possible and at a reasonable cost (1.3.4; 2.2.8).

Public Understanding, Appreciation and Enjoyment

Opportunities could be provided to enable Canadians to better understand and appreciate their marine heritage resources and the issues involved in their long term conservation/protection and use (3.0, 3.2).

Opportunities could be provided to enable Canadians to enjoy the marine environment of the West Isles by offering high quality recreatonal facilities and programs by both the public and private sector (3.0, 3.1, 3.3).

Visitor services, facilities and programs could be operated and managed so as to minimize any potential disruption to local lifestyles (1.2.1 iic; 1.2.2 ii; 3.1.6; 2.4.3 iv).

Circulation of vessels within a national marine park could be managed to enable opportunities for safe public use and to minimize conflict between commercial and recreational uses (2.4.3).

The impact of increased visitation to a national marine park in the West Isles on adjacent areas could be acceptable and manageable.

Land Acquisition

A minimal amount of privately held land would be required to achieve park objectives.

Local Services and Infrastructure

The necessary services for accommodating and sustaining increased visitor demands, including accommodation and food services, an adequate transportation system and water and sewage systems, could be provided, either by the public or private sector, at reasonable cost.

Park Development, Operations and Maintenance

The costs of capital development of park facilities and services, and of their long term operation and maintenance would be reasonable.

Economic, Social and Envrionmental Impact

The impact of park establishment on the social and economic conditions of the surrounding region would be beneficial (1.2.1 iic).

Significant renewable or non-renewable commercial resource use potential would not have to be foregone as a result of park establishment (1.3.3).

Opportunities would be available for local residents to find employment and participate in business opportunities related to the management and operation of the park (1.3.6).

Cooperative Management

A workable and efficient management structure could be arranged between Parks Canada and other federal and provincial government agencies to facilitate the cooperative management of coastal and marine resources and activities in and adjacent to the national marine park area (1.3.9; 2.2.4; 2.3.2; 2.3.3; 2.4.1).

B. Should, at the end of Phase 1, the governments believe a national marine park in the West Isles area is not feasible, the criteria and information upon which that conclusion was reached will be made available to the public.

If the two governments believe it is feasible to establish a national marine park in the West Isles area on the basis of the above criteria, the study would enter into Phase 2, at which time the public will be given the opportunity to assess the park proposal. The public comments on the feasibility will then be analyzed in relationship to the other information before a final decision is made.

Note: The term "conservation" as used in the feasibility criteria is defined in accordance with the World Conservation Strtegy which defines conservation and its objectives as follows:

> Conservation is defined here as: the management of human use of the biosphere so that is may yield the greatest sustainable benefit to present generations while maintaining its potential to meet the needs and aspirations of future generations. Thus conservation is positive, embracing preservation, maintenance, sustainable utilization, restoration, and enhancement of the natural environment. Living resource conservation is specifically concerned with plants, animals and microorganisms, and with those non-living elements of the environment on which they depend. Living resources have two important properties the combination of which distinguishes them from non-living resources; they are renewable if conserved; and they are destructible if not.
>
> Living resource conservation has three specific objectives:
>
> to maintain essential ecological processes and life-support systems (such as soil regeneration and protection, the recycling of nutrients, and the cleansing of waters), on which human survival and development depend;
>
> to preserve genetic diversity (the range of genetic material found in the world's organisms), on which depend the breeding programmes necessary for the protection and improvement of cultivated plants and domesticated animals, as well as much scientific advance, technical innovation, and the security of the many industries that use living resources;
>
> to ensure the sustainable utilization of species and ecosystems (notably fish and other wildlife, forests and grazing lands), which support millions of rural communities as well as major industries.
>
> (World Conservation Strategy, 1980)

APPENDIX 3

MANAGEMENT CATEGORIES FOR CONSERVATION AREAS

The standard categories, definitions, objectives and criteria for protected areas (IUCN, 1982) have been modified to better suit them to the marine environment (Kelleher, 1982). These are presented below.

CATEGORY I - Scientific Reserve/Strict Nature Reserve

Introduction. The rapid alteration of many natural environments has created the need for a category of management which will ensure areas free of human intervention and available exclusively for scientific research and environmental monitoring. These natural areas provide locations for research where a complete understanding of natural processes can be attained. In some situations scientific research may be limited to non-manipulative (observational) research to restrict the influence of human activity on the natural ecosystem.

Management Objectives. To protect nature (communities and species) and maintain natural processes in an undistrubed state in order to have ecologically representative examples of the natural environment monitoring, education, and for the maintenance of genetic resources in a dynamic and evolutionary state. Research activities need to be planned and undertaken carefully to minimise disturbance.

Criteria for Selection and Management. These areas possess some outstanding ecosystems, features and/or species of flora and fauna of national scientific importance or are representative of particular natural areas; they often contain fragile ecosystems or life forms, areas of important biological or geological diversity or are of particular importance to the conservation of genetic resources. Size is determined by the area required to ensure the integrity of the area to accomplish the scientific management objective and provide for its protection.

Natural processes are allowed to take place in the absence of any direct human interference; tourism, recreation, and public access are generally prescribed. Ecological processes may include natural acts that alter the ecological system or physiographic feature, such as naturally-occurring fires, natural succession, insect or disease outbreaks, storm, earthquakes and the like, but necessarily exclude human disturbances. The educational function of the site is to serve as resource for studying and obtaining scientific knowledge.

Control of use of the reserve should in most cases be by central government. Exceptions may be made where adequate safeguards and controls relating to long-term protection are ensured and where the central government concurs.

CATEGORY II - National Park

Introduction. Governments have for some time recognized the desirability of establishing protective regimes over outstanding natural areas representative of the diversity of the ecosystems of their countries and areas of jurisdiction so as to guarantee their protection and use for present and future generations. Rapid exploitation of natural resources has demonstrated that unless governments take decisive action to protect the most outstanding examples of the country's natural heritage, these resources may be lost. The continued trend of urbanisation has increased the need to provide opportunities for outdoor recreation and tourism in natural settings.

Furthermore, the need for people to understand more fully the natural environment is of particular concern in an age of rapidly diminishing natural resources. Outstanding representative areas of a nation can serve to contribute to this understanding.

Management Objectives. The protection of natural and scenic areas of national or international significance for scientific, or several entire ecosystems that are not materially altered by human exploitation and occupation. The highest competent authority of the country having jurisdiction over the area has taken steps to prevent or eliminate as soon as possible exploitation or occupation in the area and to enforce effectively the respect of ecological, geomorphological, or aesthetic features which have led to its establishment.

The resource is managed and developed so as to sustain recreation and education activities on a controlled basis. The area is managed in a natural or near-natural state. Visitors enter under special conditions for inspirational, educational, cultural, and recreational purposes.

The protected status of the area is maintained by the central government or through agreement with another agency.

Criteria for Selection and Management. Areas which meet the criteria of: large size (1000 ha+), high marine conservation value, high recreational potential, and relatively easy access qualify for national marine park status. The conservation value is assessed on the basis of size; diversity of coastal environments and habitats;

species diversity; importance to endangered, vulnerable , depleted or commercial species; conservation value of associated terrestrial habitats and species; and allied historical/cultural value.

CATEGORY III - Natural Monument/Natural Landmark

Introduction. Many countries possess natural features of particular scientific and educational interest; however, in many cases, they receive no special national recognition. The features might include spectacular waterfalls, caves, craters, volcanoes, coastal cliffs, reefs, unique species of flora and fauna, sand dunes, etc., of such scenic, scientific, educational and inspirational importance that they merit special designation and protection; because of their uniqueness, these areas deserve greater protection for both scientific and public enjoyment.

Management Objectives. To protect and preserve nationally significant natural features because of their special interest or unique characteristics and to the extent consistent with this, provide opportunities for interpretation, education, and public appreciation.

Criteria for Selection and Management. This category normally contains one or more of several specific natural features of outstanding national significance such as a geological formation, a unique natural site, animal or plant species, or habitat which, because of uniqueness of rarity, should be protected. The specific feature to be protected ideally has little or no evidence of man's activities. These features are not of the size nor do they contain a diversity of features or representative ecosystems which could justify their classification as a national park. Size is not a significant factor; the area only needs to be large enough to protect the integrity of the site.

Although Category III areas may have recreational and touristic value, they should be managed in such a way that they remain relatively free of human disturbance. These areas may be owned and managed by either central or other government agencies or non-profit trusts or corporations as long as there is assurance that they will manage to protect their inherent features for the long term.

CATEGORY IV - Nature Conservation Reserve/Managed Nature Reserve/Wildlife Sanctuary

Introduction. Although most of the other categories of management play important roles in protecting habitat for flora and fauna, management techniques can be applied to guarantee the stability of survival of certain species of plants and animals, through protection of breeding populations, feeding and breeding grounds, and critical habitat for protection of rare and endangered floral and faunal species.

Management Objectives. To assure the natural conditions necessary to protect nationally significant species, groups of species, where these require specific human manipulation for their perpetuation. Scientific research, environmental monitoring, and educational use are the primary activities associated with this category.

Criteria for Selection and Management. A Category IV area is desirable when protection of specific sites or habitats is essential to the continued well-being of resident or migratory fauna of national or global significance. Although a variety of areas fall within this category, each would have as its primary purpose the protection of nature, and not the production of harvestable, renewable resources, although this may play a role in the management of a particular area. The size of the area is dependent upon the habitat requirements of the species to be protected; these areas could be relatively small, consisting of nesting areas, marches, or lakes, estuaries, forest or grassland habitats, or fish spawning areas, or seagrass feeding beds for marine mammals.

The area may require habitat manipulation to provide optimum conditions for the species, vegetative community, or feature according to individual circumstances. For example, a particular grassland or heath community may be protected and perpetuated through a limited amount of livestock grazing, marsh for wintering waterfowl may require continual removal of excess reeds and supplementary planting of waterfowl food, whereas a reserve for an endangered animal may need protection against predators. These areas may be developed in limited areas for public education and appreciation of the work of wildlife management.

Ownership may be by the central government or with adequate safeguards and controls in which long-term protection is ensured, by lower levels of government, non-profit trusts or corporations or private individuals or groups.

CATEGORY V - Protected Landscape or Seascape

Introduction. In many areas of the world, distinctive landscape patterns are created by the integration of specific natural and cultural features that present aesthetically attractive land and water settings. These may result through traditional land use practices which have retained relatively large and scenic natural or semi-natural areas near urban centres.

At the same time, increasing population and leisure time and expanding urban areas are creating demand for additional recreation and tourism areas and facilities in aesthetic environments for citizens and visitors.

The management and protection of these natural and cultural areas are important to both recreation and science because of their potential as reservoirs of genetic material and for their social customs and land use practices, which may be disappearing under modern technology.

Management Objectives. To maintain nationally significant natural landscapes which are characteristic of the harmonious interaction of man and land while providing opportunities for public enjoyment through recreation and tourism within the normal life style and economic activity of these areas. These areas also provide for ecological diversity, scientific, cultural and educational purposes.

Criteria for Selection and Management. The scope of areas that fall within this category are necessarily broad because of the wide variety of semi-natural and cultural landscape that occur within various nations. This may be reflected in two types of areas: thos whose landscapes possess special aesthetic qualities which are a result of the interaction of man and land; and those that are primarily natural areas managed intensively by man for recreational and tourism uses.

In the former case, these landscapes may demonstrate certain cultural manifestations such as: customs, beliefs, social organization, or material traits as reflected in land use patterns. These landscapes are characterized by either scenically attractive or aesthetically unique patterns of human settlement. Traditional land use practices associated with agriculture, grazing and fishing are dominant. The size of the area is large enough to ensure the integrity of the landscape pattern.

The latter case often includes natural or scenic areas found along coastlines and lake shores or in hilly or mountainous

terrain or along the shores of rivers and inland adjacent to important tourist highways or population centres offering scenic views and climatic variation; many will have the physical qualities and potential to be developed for a variety of outdoor recreational uses with national significance.

In some cases the area may be privately held and the use of either central or delegated planning control would likely be necessary to ensure the perpetuation of both the land use and life style. Means of government assistance, might be required to improve the standard of living while maintaining the natural quality of the site through appropriate management practices. In some instances, the areas are established and managed under public ownership.

CATEGORY VI - Resource Reserve

Introduction. Despite the rapidly increasing utilization of the natural resources of land and sea, there still remian areas for which the most appropriate utilization has yet to be determined. If these areas are not protected, exploration, occupation and use are likely to occur on an unplanned single-use and short-term economic exploitation basis. This utilization without sufficient knowledge may result in resource deterioration and loss of longer-term economic and social benefits.

Management Objectives. To restrict use of these areas until adequate studies have been completed on how best to utilize the remaining resources, to protect the natural resources of the area for future use and prevent or contain development activities that could affect the resource pending the establishment of objectives which are based upon appropriate knowledge and planning.

Criteria for Selection and Management. Category VI areas will normally comprise an extensive and relatively isolated and uninhabited area having difficult access, or regions that are lightly populated yet may be under considerable pressure for colonizaton and greater utilization. In many cases, there has been little study or evaluation of these areas, and the consequences of converting them to agriculture, mineral or timber extraction, the construction of roads is unclear. Similarly, use of the resources may not be appropriate because of the lack of technology, human or financial resource restrictions, or alternative national priorities. Consequently, natural, social, and economic values are not sufficiently identified to permit the area to be managed for specific objectives or to justify its conversion to other uses. On land, restricted access is implied

so areas will normally require control, depending upon the pressure to enter and utilize them. Areas may be owned or administered by government or public corporations.

Maintenance of existing conditions to allow for studies on the potential use for the designated areas is a prerequisite. No exploitation should occur with the exceptions of use of resources by indigenous inhabitants, ongoing ecologically sound activities are acceptable.

CATEGORY VII - Natural Biotic Area/Anthropological Reserve

Introduction. In some countries there may be a need for the protection of natural areas in which man is a component and obtains his livelihood by means that do not involve extensive cultivation or other major modifications of the vegetation and animal life. These individuals or societies may require special protection to maintain their existance.

Management Objectives. To allow the way of life of societies living in harmony with the environment to continue undisturbed by modern technology. Research into the evolution of man and his interaction with the land would be a secondary objective.

Criteria for Selection and Management. Category VII areas are characterized by natural areas where the influence of technology of modern man has not significantly interfered with or been absorbed by the traditional ways of life of the inhabitants. These areas may be remote and isolated and their inaccessibility may be maintained for a considerable period of time. The societies are of particular significance to the maintenance of cultural diversity; there is a strong dependence of man upon the natural environment for food, shelter, and other basic material to sustain life. Extensive cultivation or other major modifications of the vegetation and animal life is not permitted.

Management is oriented towards the maintenance of habitat for traditional societies so as to provide for their continuance within their own cultural mores.

CATEGORY VIII - Multiple Use Management

Area/Managed Resource Area

Introduction. There is a need for a category of management for terrestrial and marine areas that can both provide protection to natural resource and ecological systems and

yet contribute significantly to economic, social, and matrial needs of nations. The multiple function of these lands or waters can provide for a sustained yield of a series of natural products and services under proper management as well as for preservation of genetic diversity and protection of natural features and systems. Watershed protection, for example, may be of particular importance in addition to the timber, forage or wildlife aspects of the area. In the case of marine areas, protection of areas of great biological diversity may be of importance in addition to sustaining the production of fish or other marine products.

Management Objectives. To provide for sustained production of water, timber, wildlife, pasture or marine products, and outdoor recreation. The conservation of nature may be primarily oriented to the support of the economic activities (although specific zones may also be designated within these areas to achieve specific conservation objectives). Within the overall area, zones may be established in which either the conservation of nature or sustainable development is the primary objective.

Criteria for Selection and Management. A large area, containing considerable territory suitable for production of wood products, water, pasture, wildlife, marine products and outdoor recreation, part of the area may be settled and may have been altered by man. The area may possess nationally unique or exceptional natural features, or may as a whole represent a feature or area of international or national significance.

Planning programmes to ensure the area is managed on a sustained yield basis would be a prerequisite. Land ownership within the management area would be under government control. Through proper zoning, parts of the area could be given degrees of protection ranging from the equivalent of scientific reserve status to minimal control consistent with sustainable development. For instance, the establishment of wilderness-type areas is consistent with the purpose of these areas as would be establishing nature reserves. Multiple use, in the context of Category VIII, is considered to be the management of all renewable resources, utilized in some combination to best meet the needs of the country. The major premise in the management of these areas is that they will be managed to maintain the overall productivity of the area and its resources in perpetuity.

CATEGORY IV - Biosphere Reserve

Introduction. One focus on the UNESCO Man and the Biosphere Programme, initiated in 1970, is to conserve representative natural areas throughout the world through the establishment of a network of biosphere reserves.

Management Objectives. To conserve for present and future use the diversity and integrity of biotic communities of plants and animals within natural ecosystems, and to safeguard the genetic diversity of species on which their continuing evolution depends.

Biosphere reserves provide opportunities for ecological research, particularly baseline studies, both within natural and altered environments. These reserves have particular value as benchmarks or standards for measurement of long-term changes in the biosphere as a whole and are consequently important sites for environmental monitoring. Biosphere reserves are to provide facilities for education and training.

Criteria for Selection and Management. Each biosphere reserve will include one or more of the following:

(a) representative examples of natural biomes;

(b) unique communities or areas with unusual natural features or exceptional interest;

(c) examples of harmonious landscapes resulting from traditional patterns of land use; and

(d) examples of modified or degraded ecosystems capable of being restored to more natural conditions.

A biosphere reserve must have adequate long-term legal protection. Each biosphere reserve will be large enough to be an effective conservation unit, and to accommodate different uses without conflict. Each reserve must be approved by the Man and the Biosphere International Co-ordinating Council before it can receive designation as a biosphere reserve.

Each biosphere reserve will be zoned to provide direction as to its management. Four zones may be delineated as follows:

(a) Natural or Core Zone;

(b) Manipulative or Buffer Zone;

(c) Reclamation or Restorative Zone; and

(d) Stable Cultural Zone.

CATEGORY X - World Heritage Site (Natural)

Introduction. The International Convention concerning the Protection of the World Cultural and Natural Heritage (UNESCO 1972) provides for the designation of areas of "outstanding universal value" as World Heritage Sites. These exceptional areas must be recommended by the signatory nation responsible for the site for declaration by the International World Heritage Committee. The sites will undoubtedly include many previously designated protected areas.

Management Objectives. To protect the natural features for which the area was considered to be of world heritage quality; to provide information for world-wide public enlightenment; to provide for research and environmental monitoring.

Criteria for Selection and Management. Areas to be considered under the Convention will be restricted to those which are truly of international significance. Natural sites must represent one or more of the following criteria:

i) be outstanding examples representing the major stages of the earth's evolutionary history;

ii) be outstanding examples representing significant ongoing geological processes, biological evolution and man's interaction with his natural environment;

iii) contain unique, rare or superlative natural phenomena, formations or features or areas of exceptional natural beauty; and

iv) be habitats where populations of rare or endangered species of plants and animals still survive.

Natural Heritage Sites must also fulfill conditions relative to the integrity of the site.

Management of these sites will stress the maintenance of the heritage values, will ensure the continuation of legal protection and will promote each site for its significance to each country, its people and the world.

All sites will have to have strict legal protection and will be owned by government or non-profit corporation or trust for the long term. While recreation and on-site interpretation will generally be developed, some sites may be of such significance that public use will either be strictly controlled or prohibited.